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ABSTRACT

Papers in this volume on contrastive linguistics include the following: "Auxiliaries in English and Danish" (Niels Davidsen-Nielsen); "On Tongue Twisters" (Wlodzimierz Sobkowiak); "On Derivational and Phrasal Adverbials of Manner" (James L. Wyatt); "Scrambling and the Polish Word Order. An Alternative Hypothesis" (Przemyslaw Tajsner); "Verbs of Sensory Cognition: A Contrastive Analysis of a Lexical Field in the Lexicon of Polish and English" (Roman Kopytko); "Phonostylistics and Second Language Acquisition" (Katarzyna Dziubalska-Kolaczyk); "A Contrastive Analysis of Object Control in English and German" (Christian Mair); "The Lexical Fields 'Broad/Thick' Analysed and Compared With Their German Counterparts 'Breit/Weit/Dick'" (Bernhard Diensberg and Annette Dell); "On the Contrastive Phonology of the Stressed Vowels in English and Bulgarian" (Andrei Danchev); "Aspiration in English and Polish: An Overview" (Piotr Ruszkiewicz); "The Complements of Perception Verbs in English and Polish" (Roman Kopytko); "Some Reflections on Ideas and Results of Feminist Linguistics" (A. I. Dorodnykh and A. P. Martyniuk); "On the Analysis of Modal Meanings in Spoken German of Native Speakers and Polish Learners" (Leszek Skibniewski); and "On Case Marking in Polish" (Ewa Willim). (MSE)

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PAPERS AND STUDIES IN CONTRASTIVE LINGUISTICS

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AUXILIARIES IN ENGLISH AND DANISH*

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Introduction

Although some linguists question their existence, auxiliaries are recognized in most descriptions of modern English and Danish. According to one – fairly typical – recent description of English (Vestergaard 1985), the class of auxiliaries comprises *have*, *do*, *be* and the modals *can/could*, *may/might*, *shall/should*, *will/would*, *must*, but in addition to these 'central' auxiliaries there are assumed to be a number of 'marginal' auxiliaries, such as *seem to*, *be going to*, *ought to*, *used to*, *dare*, *need*, *have* (*got*) *to*. In Danish it is customary to recognize as auxiliaries *have* 'have', *være* 'be', *blive* 'become' and the modals *kunne* 'can', *måtte* 'may, must', *ville* 'will', *skulle* 'shall', *turde* 'dare', *gide* 'be bothered to', *burde* 'ought to' (see Hansen 1967). Auxiliaries are separated from lexical verbs by a combination of morphological, syntactic, and semantic criteria. However, this separation is by no means straightforward, as reflected by the fact that grammarians often find it necessary to operate with 'marginal' and/or 'semi-auxiliaries' in addition to auxiliaries proper. A distinction has been drawn between auxiliaries and *catenatives*, i.e. lexical verbs like *keep*, *promise*, *get*, etc., which resemble auxiliaries in combining with non-finite verb forms (Twaddell (1965:22), Huddleston (1984:142)). In order to distinguish auxiliaries from catenatives in English, grammarians operate with the so-called NICE-properties: in negative, interrogative, and emphatic sentences, and with respect to 'verbum vicarium', auxiliaries differ from other verbs in requiring no *do*-support. Furthermore, most auxiliaries in English (the modals) differ morphologically from lexical verbs in being defective, and semantically the auxiliaries differ from the majority of lexical verbs in expressing only general – temporal, aspectual, modal, or diathetic – meanings. (Such meanings are not expressed by catenatives like *try*, *remember*, *enjoy*, *forget*.) In spite of the many criteria which have been proposed, the separation of auxiliaries from lexical verbs is by no means easy. In Danish, where the behaviour in negative, interrogative, and emphatic sentences of the verbs usually analysed as auxiliaries is no different from that of lexical verbs, and where these verbs are morphologically not very defective, the distinction is even more difficult to draw (although it helps a little that the modals do not form present tense by means of the suffix *–r*).

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In their recent *A Comprehensive Grammar of the English Language* Quirk and his co-authors operate with a *scale* ranging from clear auxiliaries to clear full verbs (1985:137). Whereas a verb like *may* is assumed to belong unproblematically to the former category and a verb like *begin* unproblematically to the latter, it is not obvious how verbs such as *need*, *ought to*, *had better*, *be to*, *have to*, and *seem to* should be interpreted. Between the end points of their scale Quirk et al. operate with marginal modals, modal idioms, semi-auxiliaries, and catenatives. A sentence like *I ought to go* illustrates one such borderline case, where it is difficult to decide whether we are faced with one verb phrase containing an auxiliary (as in *I can go*) or two verb phrases containing no auxiliary (as in *I hope to go*). In spite of their relativistic approach Quirk at al. do in fact propose a cut-off point, for on page 120 they state that the English auxiliaries are the primary verbs *be*, *have*, *do* and the modal verbs *can* (*could*), *may* (*might*), *will* (*would*), *shall* (*should*), and *must*. This means that modal idioms, semi-auxiliaries, and catenatives are all excluded from the class of auxiliaries proper.

The recognition of an auxiliary-full verb scale brings to mind the notion of *imprecise categories*, which is discussed by Östen Dahl in his book on tense and aspect (1985). In Dahl's opinion grammatical categories are typically imprecise. In this way they resemble everyday terms such as *bald* and *bird*, which are virtually impossible to define in such a way that there will be no borderline cases. Speaking of imprecise categories is practically the same as speaking of *focused* categories (Dahl, op. cit.) since both concepts imply that not all members of a category have the same status. Whereas the focus of a category is constituted by the 'best exemplar', or 'prototype', the entities that belong to the periphery have a more or less dubious membership. Thus although a penguin, for example, is within the extension of the category 'bird' (being a feathered warm-blooded vertebrate with two legs and two wings) it belongs to the periphery of this category (as a result of its inability to fly, sing, and be spotted in trees).

The category 'auxiliary verbs' seems to be a good example of an imprecise linguistic category, for whichever set of criteria we decide to use to single out its members, there are likely to be borderline cases. This should not make us uneasy, for such borderline cases are interesting precisely because they are auxiliaries in some respects and full verbs in others. As pointed out by Dahl, a linguistic notion may in fact be less useful if in our attempts to clarify it we eliminate genuine imprecision. If we look at the history of English and Danish, as well as that of many other languages, it is not surprising that auxiliaries do not make up a very precise category. In the show process of change from a predominantly synthetic to a predominantly analytic typology a system of auxiliary verbs has gradually arisen, and some of these verbs have not yet acquired as secure a foothold in the category as others.

Epistemic and non-epistemic modals

Before proceeding to the separation of auxiliaries from lexical verbs in English and Danish, it is necessary to discuss the distinction between epistemic and non-epistemic (or root) modals. It is argued here that the verbs traditionally grouped together as modal auxiliaries in English and Danish belong to two different classes (see, for example, Anderson 1971). This distinction is justified for a number of reasons. In the first place, they are practically all ambiguous. This may be illustrated by selected examples like *She may go home*, *They should be home* and *Hun kan rejse i morgen* ('She may/can leave tomorrow'), *De bør være hjemme* ('They ought to be at home'), in which each modal has two meanings, one epistemic and one non-epistemic.

As a distributional confirmation of this distinction we can note that the epistemic verbs permit a following perfect infinitive with past time meaning (unlike the non-epistemic verbs):

John may/must/can't/needn't have passed the exm.
John kan/må/skal/bør have bestået eksamen.
('John may/must/is said to/ought to have passed the exam')

According to Palmer (1979:36f) epistemic modals are kept apart from all other modals in English by this criterion. It should be pointed out, though, that deontic *ought to* and *should* do in fact occur in this context (*You ought to/should have done it yesterday*), and the same goes for Danish *skulle* 'shall' and *burde* 'ought to'.

Another syntactic argument in favour of assigning the modal verbs to two classes is provided by conditional clauses. In this context the non-epistemic modals occur freely, cf. examples like *If I may borrow your bike* ... and *Hvis jeg skal være hjemme kl. 11* ... ('If I have to be back by eleven ...'), whereas epistemic modals are not normally permitted, cf. the ungrammaticality of examples like **If she must be abroad* ... and **Hvis svenskerne skal være et* *afslappet folkefærd* ... ('It the Swedes are said to be an easy-going lot ...'). It should be added, though, that given specific larger contexts one occasionally comes across epistemic modals in conditional clauses. If A says *He may come back at any moment*, B may reply, epistemically as well, *If, as you say, he may come back at any moment, we'd better hurry*.

In English, thirdly, the epistemic modals differ from the non-epistemic ones in combining with the progressive aspect:

He may be coming back at any moment.
*You may be borrowing my bike.
You must be approaching fifty.
*You must be doing it at once.
They can't be leaving yet.
*You can't be borrowing my bike.

That epistemic modals are free to combine with perfect and progressive constructions follows naturally from the fact that their only function is to judge the truth value of various statements. The events described by these statements may already be terminated or they may be in progress. For the same reason the epistemic modals in Danish combine freely with lexical verb phrases like *være ved at* and *være i færd med* ('be-ing'). On the other hand, one cannot give obligation, permission, etc. to the performing of events which are terminated or in progress.

In Danish, finally, epistemic modals differ from non-epistemic modals with respect to objects and place adverbials. As it appears from examples like *Hun kan/vil/må/skal en masse* ('She can/wants to/is allowed to/is to (do) lots of things') and *Jeg vil/må/skal/bør hjem* ('I want to/must/have to/ought to (go) home'), the non-epistemic modals *kunne, ville, måtte, skulle, burde* may occur by themselves and take objects (first four) or govern a place adverbial (last four). Furthermore, the epistemic modals differ from the non-epistemic modals with respect to passivization. While the former require the passive with *blive* ('become'), the latter require the *-s* passive, cf. examples like *Peter bør blive udnævnt snart* and *Peter bør udnævnes snart* ('Peter ought to be appointed soon').

For these semantic and syntactic reasons we conclude that the modal verbs of English and Danish – with the exception of *dare, shall* and *turde* 'dare', *gide* 'be bothered to', which have no epistemic uses – belong to two classes, one of which is epistemic and the other of which is non-epistemic.

Criteria of auxiliarity

Even if we restrict ourselves to one language, the separation of auxiliaries from full verbs is no simple matter. In a contrastive analysis of two or more languages it is even more difficult to single out auxiliaries, for in order for the contrastive analysis to be reliable the criteria employed have to be the same. As the widely used NICE-criteria which have been proposed for English all involve a language specific use of the verb *do*, they are of no real value in a contrastive framework. This means that we have to look for criteria of a more general nature.

In a paper dating from 1983 such criteria have been proposed by Spang-Hanssen. The aim of this paper is to set up criteria which permit the analyst to single out a class of grammatical verbs which are intimately connected with another verb and which are similar to verbal inflections. It is not considered sufficient to propose a number of operational tests: the criteria should also isolate a class of verbs which is useful for the formulation of grammatical rules. Above all, it is considered important that auxiliaries – insofar as these occur in a language – behave like verbal grammatical endings.

Among the eight criteria discussed by Spang-Hanssen there are four which are particularly helpful in a contrastive description of English and Danish and which we shall therefore select as our working tools:

(i) The meaning of an auxiliary is general and abstract. Apart from semantically empty verbs – like English *do* – its content is analysable in terms of temporal, aspectual, modal, or diathetic values.
(ii) An auxiliary is functionally dependent in the sense that it is impossible to modify it without simultaneously modifying the lexical verb it combines with. In other words, Aux + V can only be modified globally.
(iii) The addition of an auxiliary does not affect the lexical restrictions of the verb it combines with.
(iv) An auxiliary is attached to a lexical verb without any intervening infinitive marker, i.e. it governs a bare infinitive or a participle.

Verbs which satisfy these four criteria are similar to verbal inflections since (i) the meanings of such inflections are general and analysable in terms of temporal, aspectual, modal, or diathetic values; (ii) inflections cannot be modified alone; (iii) inflections do not affect the lexical restrictions of the verbs they are attached to; (iv) inflections are attached directly to the verbs they modify.

In the following these criteria will be examined one by one.

The semantic criterion

Whereas temporal, aspectual, and diathetic meanings appear to be unproblematically general, this is not the case with all modal meanings, for there is a marked difference in generality of meaning between epistemic and non-epistemic modality. This is apparent from Danish examples like *De kan* *være på ferie* ('They may be on holiday') and *Mine studenter kan læse russisk* ('My students can read Russian'). In the second sentence non-epistemic *kan* attributes specific properties to the agent referred to by the subject noun phrase *Mine studenter*, and the scope of the modal is restricted to this noun phrase. In the first sentence, on the other hand, the meaning of epistemic *kan* is as general as can be – logical possibility – and the scope of the modal is the whole proposition. According to Bybee and Pagliuca (1985) epistemic uses of modal verbs have developed from originally non-epistemic uses. For example, English *must* was used in the sense of obligation in the earliest written documents as it is today, but in the 17th century it took on the epistemic sense of inferred certainty. This type of development is seen as a semantic generalization which has taken place through metaphorical extension. As grammatical functions are necessarily abstract, such an emptying of lexical content is regarded as a prerequisite to grammaticization.

Bybee and Pagliuca emphasize that inflectionally marked modalities are nearly always epistemic. On the basis of studies of a large number of languages they conclude that as far as inflection is concerned the rarity of non-epistemic modalities is in striking contrast to the frequency of epistemic modalities. Although this is undoubtedly true cross-linguistically, it must be pointed out, however, that in English and Danish (and some other languages as well) inflectionally marked modalities are also deontic. This is apparent from the fact that compulsion and wish are expressed by –Ø and (in Danish) –*e* in the imperative and subjunctive, cf. examples like *Go to bed*/*Gå i seng* and *Long live the Queen*/*Længe leve Dronningen*. As it would not be reasonable to require that the meanings expressed by auxiliaries be *more* abstract than those expressed by inflection – the extreme form of grammaticization – we shall conclude that the deontic modals are sufficiently abstract to be recognized as auxiliaries, in spite of the fact that their meanings are less general than those of epistemic modals. As far as abstractness of meaning is concerned, one might add, deontic modality seems to be intermediate between epistemic and dynamic modality, cf. examples like *Can this be true*? (most abstract), *Can you swim*? (least abstract), and *Can I borrow your bike*? (intermediate).

According to the criterion of general meaning epistemic modal verbs are clearly included in the class of auxiliaries, and the same goes for verbs with temporal, aspectual, and diathetic meanings or which are semantically empty. Also included are the deontic modals. On the other hand, the dynamic modals are clearly excluded. In English this means that the following verbs are semantically auxiliaries: *be*, *have*, *do*, *will* (temporal), *may*, *might*, *can*, *could* of permission and epistemic possibility, *must*, *need*, *should* of compulsion and epistemic necessity, and *shall*, *should* of obligation. In Danish the verbs singled out by the semantic criterion are *være* 'be', *have* 'have', *blive* 'become', *ville* 'will' (temporal), *kunne* 'can' of permission and epistemic possibility, *måtte* 'may/must' of permission, compulsion, and epistemic necessity, *behøve* 'need' of compulsion and epistemic necessity, *skulle* 'shall' of compulsion, obligation, epistemic report and (weakened) epistemic necessity, and *burde* 'ought to' of duty and epistemic probability.

The criterion of general meaning includes not only hard core epistemic and deontic modals but also some modals which are not normally regarded as auxiliaries. In English, for example, *be bound to, be certain to, be sure to*, and *have* (*got*) *to*, all of which express necessity, are auxiliaries by this criterion. Also included by the semantic criterion are verbs such as *seem to, appear to, happen to*, and *be likely/about to.*

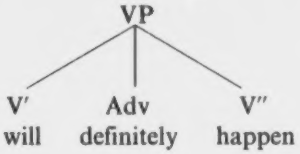
The criterion of functional dependency

A verbal inflection does not constitute an independent lexical unit and therefore cannot be modified by itself. In a sentence like *I handed her the tray carefully*, for example, the adverb obviously does not modify the past tense inflection alone but also the verb to which it is attached. In order to eliminate from the class of auxiliaries those verbs which differ from verbal inflections in constituting independent lexical units, we shall therefore investigate whether the structure V′ + V″ (in which V′ symbolizes a potential auxiliary and V″ a following non-finite verb) is modified globally or not. If the modification is global, V′ + V″ behaves like V + inflection, and V′ may be analysed as an auxiliary. If V′ is modified by itself, on the other hand, it cannot be included in the class of auxiliaries.

In English, the verbs *be, have, do*, temporal *will* and the epistemic modals all satisfy the criterion of functional dependency:

She is definitely going.
She was definitely defeated.
She has definitely finished the job.
Did she really like it?
It will definitely happen soon.
She may definitely be in London now.
Can this really be the case?
She must definitely be in London now.
Need this really be the case?
She should/ought definitely (to) be in London now.

In the examples, the modification is global, i.e. the verb phrase has the following structure:



That this is so appears from the fact that it is not possible to focalize V″. For example, **What she definitely may is (to) be in London now* is clearly ungrammatical.

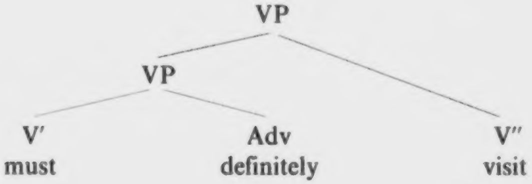
In the case of nearly all non-epistemic modals, on the other hand, V′ is functionally independent:

You may/can definitely finish the pie.
You must definitely visit my aunt.
He can easily run a mile.
I definitely won't pay the money back.
I definitely daren't publish that manuscript.

That the adverbs modify V′ rather than V′ + V″ is apparent from the fact that V″ may be focalized:

What you definitely may/can do is finish the pie.
What you definitely must do is visit my aunt.
What he easily can do is run a mile.
What I definitely won't do is pay the money back.
What I definitely daren't do is publish that manuscript.

Admittedly, focalization is not normally possible without *do-* support of V′, but this does not affect the point that V′ and V″ are separated by the focalization transformation. In these cases, then, the verb phrase has the structure



While the deontic modals expressing permission (*may, can, might, could*) and compulsion (*must, have to, need, should, ought to*) and the dynamic modals expressing ability (*can, could, be able to*), volition (*will, would*) and resolution (*dare*) are in this way excluded from the class of auxiliaries, *shall* used in the sense of obligation or insistence – like Danish obligational *skulle* – behaves syntactically like the epistemic modals in spite of the fact that it is semantically non-epistemic. In a sentence like *He shall definitely get his money* the adverbial modifies V′+V″ globally, cf. that neither focalization nor interrogation of V″ is possible: *What he definitely shall is get his money/*What is it he definitely shall? A possible reason why *shall* behaves like an auxiliary is that its deontic meaning is sometimes fairly weak as compared with its future time meaning, cf., for example, *You shall not catch me so easily next time.* Here *shall* is closely related to temporal *will*, which also meets the criterion of functional dependency.

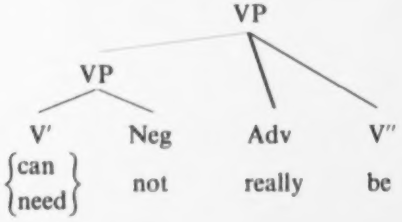
In English, the criterion of functional dependency includes some verbs which are not normally regarded as auxiliaries, such as *be bound to* and *have (got) to.* That these are functionally dependent appears from examples like *It's definitely bound to come out* and *He's definitely got to be joking.*

In Danish, the situation is basically the same as in English: the criterion of functional dependency includes in the class of auxiliaries the verbs with temporal or diathetic meanings (*være 'be', have* 'have', *blive* 'become', temporal *ville* 'will') as well as the epistemic modals *kunne* 'can' of possibility, *måtte* 'must' and *behøve* 'need' of necessity, *burde* 'ought to' of probability, and *skulle* 'shall' of report. On the other hand, it excludes not only the dynamic but also the deontic modals, with the single exception of *skulle* used in the sense of obligation (promises, threats). This may be illustrated by selected examples like *Hun er bestemt gået hjem* 'She has definitely gone home'/*Det må bestemt ske snart* 'It definitely has to happen soon', which exemplify functional dependency (global modification), and *Han må absolut byde hende en drink* 'He must definitely offer her a drink'/*Han kan let løbe 100 meter på 11 sekunder* 'He can easily run 100 meters in 11 seconds', which exemplify functional independency. That the adverbial modifies the modal verb alone in the last two sentences is apparent from the fact that both focalization and interrogation of V″ are possible: *Hvad han absolut må er at byde hende en drink/ Hvad han let kan er at løbe 100 meter på 11 sekunder/ Hvad er det han absolut må?/ Hvad er det han let kan?*

Before concluding our discussion of functional dependency we have to mention an analytical problem, namely modification by means of the negatives *not/ikke* (as well as a few other negative adverbs, such as *hardly, scarcely/ næppe*). In the case of some of the modal verbs it is evidently V′ which is modified in this way, cf. the following examples cited from Quirk and Greenbaum (1973:189):

You may not go swimming.	(non-permission)
You can't be serious.	(impossibility)
You can't go swimming.	(non-permission)
She can't ride a bicycle.	(inability)
You needn't pay that fine.	(non-compulsion)
It needn't always be my fault.	(non-necessity)

The main problem here is that epistemic *can* and *need* – which have been shown to be functionally dependent in sentences like *Can this really be the case?* and *Need this really be the case?* – are functionally independent as far as negation is concerned. In sentences like *This cannot really be the case* and *This needn't really be the case*, therefore, the structure is like this:



As it appears, *can* and *need* are functionally dependent with respect to *really* but functionally independent with respect to *not*. In Danish, the epistemic modals *kunne* and *behøve* are also functionally independent as far as negation is concerned:

Du kan ikke mene det. (impossibility)
('You can't mean that')
Det behøver ikke (at) være min fejl. (non-necessity)
('It needn't be my fault')

If the criterion of functional dependency is applied strictly, the epistemic modals *can, need* in English and *kunne, behøve* in Danish are excluded from the class of auxiliaries. It should be emphasized, though, that it is only with respect to negative modification that these verbs do not qualify as auxiliaries according to the second criterion.

The criterion of permanence of the lexical restrictions of V″

A verbal inflection does not affect the lexical restrictions of the verb it is attached to. If sentences like *I bring you flowers* and *I appoint you director* are correct, then sentences like *He brings you flowers, I brought you flowers*, and *I appointed you director* are also correct. As pointed out above, auxiliaries are grammatical verbs which resemble verbal inflections, and it is therefore natural to require that they do not affect the lexical restrictions of the verbs they combine with either. Since the context to the right of the verb phrase is dependent on V″ exclusively (cf. for example, *He has brought you flowers* and *I will appoint you director*), the question to be asked is therefore whether V′ + V″ admits the same subjects as V″ alone. If this is the case, V′ may be interpreted as an auxiliary. If not, it has to be interpreted as a lexical verb.

It has been observed by many grammarians that in order to isolate a class of auxiliaries it is particularly useful to investigate *inanimate subjects*. If V″ requires this type of subject – as in the case of *rain/regne* and *expire* (= come to an end)/*udløbe* – V′ + V″ should also accept it in order for V′ to be analysed as an auxiliary. As illustrated by the following examples, such subjects are admitted in the case of *have*, *be*, *do*, (temporal) *will* and epistemic verbs:

> It has rained.
> It is raining.
> It doesn't rain (much here).
> It will rain.
> It may rain.
> It must rain (a lot in Ireland).
> It's bound to rain (a lot in Ireland).
> It could/might be raining.
> It should/ought to be raining now (a few miles away).
> Surely it can't rain (a lot in Ethiopia).
> It needn't rain (all the time).

Similarly, in Danish, inanimate subjects are admitted in the case of *have* 'have', *være* 'be', *blive* 'become', (temporal) *ville* 'will' and epistemic verbs, cf. selected examples like *Det har regnet* 'It has rained' and *Det må regne meget i Irland* 'It must rain a lot in Ireland'.

In the case of non-epistemic modal verbs, on the other hand, V′ + V″ does not normally accept inanimate subjects. This is apparent from the following examples:

English:

> *The contract can expire. (in the sense of ability)
> *The contract will expire. (in the sense of volition)
> *The contract daren't expire.
> *It shall rain.

Danish:

> *Kontrakten kan udløbe. (in the sense of ability)
> *Kontrakten vil udløbe. (in the sense of volition)
> *Kontrakten tør ikke udløbe.
> *Kontrakten gider ikke udløbe. ('The contract doesn't care to expire')
> *Det skal regne. (in the senses of obligation and arrangement)

According to Bybee and Pagliuca (1985) non-epistemic modality differs from epistemic modality in being agent oriented, more specifically in involving a *wilful agent*. In the case of modalities such as ability, volition, resolution, and inclination, where the agent is the referent of the subject noun phrase, inanimate subjects are clearly ruled. out. With deontic modality, on the other hand, the situation is different because the source of modalities such as permission, compulsion, obligation, and duty is the speaker. In certain situations, the speaker may permit, compel, oblige, or morally require an inanimate subject noun phrase referent to trigger off a certain action:

> It may/can rain now for all I care.
> Det må/kan for min skyld godt regne nu.
> The contract must expire before the first of October.
> Kontrakten skal/må udløbe senest første oktober.
> ?The contract shall expire as you desire.
> ?Kontrakten skal udløbe som ønsket.
> This contract ought to/should expire before the first of October.
> Kontrakten bør udløbe senest første oktober.

This, however, is the exception and not the rule. In the case of epistemic modality, on the other hand, nothing prevents the use of inanimate subjects, since the only function of epistemic modals is to judge the truth value of a statement.

The criterion of the permanence of V'''s lexical restrictions (impersonal subjects) thus clearly includes among the auxiliaries epistemic modals as well as the verbs *have*, *be*, *do*, (temporal) *will* and *have* 'have', *være* 'be', *blive* 'become', (temporal) *ville* 'will'. On the other hand, it excludes the dynamic modals completely and the deontic modals in their normal uses. In Danish it also excludes *være i færd med* ('be-ing') as well as the verb *få* ('get'), which expresses future time in an idiomatic expression like *Vi får se* ('We shall see') and future result when followed by a past participle in examples of the type *Får du snart skrevet?* ('Will you be getting down to writing soon?'). This is apparent from the fact that verbs which require ininimate subjects, such as *udløbe*, do not permit preceding *er i færd med* or *får*.

The criterion of direct attachment

The criterion of direct attachment of V' to V'' (that is, without any intervening infinitive marker) excludes some verbs from the class of auxiliaries which are included by the other criteria. In English, *have* (*got*) *to*, *be bound/certain/sure to*, and *ought to* of epistemic necessity are auxiliaries not only with respect to their meaning – which is general and modal – but also with respect to functional dependency and permanence of the lexical restrictions of V''. This is apparent from examples like the following, the first three of which illustrate global modification and the last three of which illustrate combinability with inanimate subjects:

He's definitely got to be joking.
We're definitely bound to be late.
She definitely ought to be in London now.
There has to be a way out.
There's bound to be a way out.
There ought to be a way out.

The verb *be going to*, which meets the first three criteria as well, is also excluded from the class of auxiliaries by the criterion of direct attachment, and so are the modals *seem to* and *appear to*.

In Danish this criterion excludes a verb like *være nødt til* 'have to' of epistemic necessity, which qualifies as an auxiliary not only semantically but also in respect of the other two syntactic criteria:

Det er bestemt nødt til at ske inden længe.
('It must definitely happen before long')

In conservative Standard Danish the criterion of direct attachment excludes *behøve* 'need' of epistemic necessity as well, cf. an example like the following:

Behøver dette overhovedet at være sandt?
('Need this be true at all?')

In advanced Standard Danish, on the other hand, this verb requires no infinitive marker (see Hansen 1977):

Behøver dette overhovedet være sandt?

In this type of Danish, *behøve* is thus an auxiliary according to all four criteria in the same way as epistemic *need* in English. In this paper we base our analysis on the non-conservative variety of Danish and accordingly interpret epistemic *behøve* as an auxiliary.

In addition to excluding some epistemic modal verbs, the criterion of direct attachment excludes a number of verbs which are excluded by other criteria as well, such as *used to* of habit, *be able to* of ability, *ought to* of duty, *have* (*got*) *to* and *need to* of compulsion, and *dare to* of resolution in English. Similarly, it excludes *have* (*at*) and *være nødt til* 'have to' of compulsion as well as *være i stand til* 'be able to' of ability in Danish.

On the other hand, the criterion of direct attachment obviously includes in the class of auxiliaries a large number of catenatives which are excluded by the other criteria. In English, *keep*, *get*, *stop*, *hear*, *feel*, etc. and most of the non-epistemic modal verbs are auxiliaries according to this criterion. In Danish, the same applies to verbs like *få* 'get', *lade* 'let', *høre* 'hear', *se* 'see', *komme* 'come' and the majority of non-epistemic modal verbs.

The criterion of direct attachment differs from the other three criteria in relating neither to meaning nor syntactic function, and it therefore appears to be of secondary importance. Whether V′ and V″ are separated by a particle or not might seem to be an accidental product of history and therefore not of great relevance to the separation of auxiliaries from lexical verbs. On closer inspection, however, a different picture emerges. As pointed out by E. Hansen (1977) Danish *turde* 'dare' and *gide* 'be bothered to', which are non-auxiliary according to the first three criteria, and which in conservative Danish combine with the bare infinitive, are beginning to accept *at*-infinitives: *Han tør ikke at spørge* 'He daren't ask'/*Vi gider ikke at være med* 'We don't feel like joining in'. Conversely, *behøve* 'need', which is an auxiliary according to the first three criteria when used epistemically, is losing its infinitive marker. It thus appears that presence vs. absence of the infinitive marker is in fact a non-trivial surface indicator of auxiliary vs. non-auxiliary status. Note, however, that this does not imply that any verb which permits a following bare infinitive is an auxiliary.

Conclusion

Although the separation of auxiliaries from lexical verbs in Danish and English is no simple matter, there seem to be arguments in favour of claiming that in order for a verb to be analysed as an auxiliary it should meet all the four criteria which are satisfied by verbal inflections. Obviously, it would be analytically satisfactory if application of each of these criteria singled out exactly the same class of verbs. That this is not the case is due to the fact that we are dealing with natural, changing languages, in which there are verbs that have acquired some but not all of the properties of auxiliaries. In particular, the non-epistemic modal verbs behave like auxiliaries proper, partly with respect to direct attachment and partly with respect to verbum vicarium/code (as well as the other NICE-properties mentioned above). It is for this reason – and also because of their morphological defectiveness – that these verbs are normally classified as auxiliaries in English. However, the fact remains that they differ from verbal inflections in a umber of significant ways. The dynamic modals *can/kunne* of ability, *will/ville* of volition, *dare/turde*, and *gide* 'be bothered to' are clearly non-grammatical with respect to meaning, functional dependency, and permanence of the lexical restrictions of V″, and the exclusion of these verbs from the class of auxiliaries is therefore based on solid arguments. On the other hand, the status of the deontic modals *may, can/ måtte, kunne* of permission, *must, need, should/ skulle, måtte* of compulsion, *shall, should / skulle* of obligation, and *burde* 'ought to' of duty is more problematic. Besides attaching directly to V″ they are grammatical in nature by, under certain circumstances, permitting inanimate subjects and by express ing a type of meaning (deontic) which may also be expressed morphologically. However, the deontic modals are non-grammatical in two ways: they are modified independently (with the isolated exception of *shall/skulle*) and they do not freely take inanimate subjects. For these reasons they are here excluded from the class of auxiliaries, and they are consequently assumed not to be manifestations of (grammatical) mood. Owing to their affinity to auxiliaries, however, they are obvious candidates for inclusion in a set of semi-auxiliaries, if such verbs are recognized.

According to the criteria selected, the class of auxiliaries in English is thus considered to comprise the following verbs:

Primary	*have*	(perfect tense)
	be	(progressive aspect, passive voice)
	do	(empty)
	will	(future tense)
Modal	*may, might, can, could*	(epistemic possibility)
	must, need, should	(epistemic necessity)

Examples:

The dog has run away.
My foot is hurting.
We were caught in a traffic jam.
I didn't see him.
Dinner will be at eight.
The road may be blocked. /The road might be blocked.
Can spring be far behind?
It could be true.
You must be tired.
He needn't be Dr Livingstone.
They should be back now.

As it appears, *need* and *can* are recognized as auxiliaries in spite of the fact that their inclusion is not unproblematic with respect to one of the criteria, namely that of functional dependency: though normally modified together with V″, they are modified independently by negative adverbs.

In Danish, the class of auxiliaries is assumed to comprise the following verbs:

Primary	*have*	(perfect tense)
	være	(perfect tense, passive voice)
	blive	(passive voice)
	ville	(future tense)
Modal	*kunne*	(epistemic possibility)
	måtte, behøve	(epistemic necessity)
	skulle	(epistemic report and necessity)
	burde	(epistemic probability)

Examples:

Vi har kendt hinanden i mange år. ('We have known each other for many years')
Hunden er løbet væk. ('The dog has run away')
Jeg er bundet af en uheldig kontrakt. ('I'm bound by an unfortunate contract')
Han blev dræbt i krigen. ('He was killed in the war')
Denne afgørelse vil få alvorlige konsekvenser. ('This decision will have serious consequences')
Det kan være sandt. ('It may be true')
Det må være sandt. ('It must be true')
Det behøver ikke være sandt. ('It needn't be true')
Han skal være en udmærket mekaniker. ('He is said to be an excellent mechanic')
Peter skulle være i London nu. ('Peter should be in London now')
Peter bør være i London nu. ('Peter ought to be in London now')

It may be added that the modal auxiliaries *kunne, måtte, skulle, burde, behøve* differ from their lexical counterparts and the remaining lexical modals not only with respect to some of the criteria discussed and with respect to distribution (cf. the section on epistemic and non-epistemic modals above), but also *morphologically*: they do not normally occur in the past participle. That lexical verbs accept this form freely is apparent from examples like the following:

Jeg har før kunnet/måttet/skullet løse sådanne opgaver.
('I have been able to/had to solve such problems before')
Jeg har ikke gidet/turdet besøge dem.
('I haven't cared to/dared to visit them')
Jeg har aldrig behøvet at forberede mig ret længe.
('I have never had to prepare for a very long time')

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ON TONGUE TWISTERS

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INTRODUCTION

Slips of the tongue have so far been studied in two, fundamentally different and mutually exclusive, though complementary ways. One is the collection of spontaneous errors, their classification and analysis. The other, much less common, and considerably more novel, is inducing slips under laboratory conditions, where artificial stimuli are created and applied to subjects under time pressure, with an instruction to manipulate the input in strictly controlled ways (see Baars, Motley and MacKay (1975); Motley and Baars (1979); Dell (1980)).

The complementariness of the two procedures flows from the naturalness of the former and methodological rigour of the latter. Yet, there is a third option which combines the advantages (and, to some extent, the drawbacks) of the aforementioned methods: the investigation of traditional tongue twisters (TTs) current in the spoken lore of the language. Like spontaneous slips, those generated by TTs are natural in the sense that they result from naive speakers' verbal interaction and no linguist's control is imposed on them. Like experimental errors, however, they are to some extent organized and exhibit a certain amount of metalinguistic awareness on the part of their creators.[1] In fact, they share this property with a variety of other types of speakers' verbal behaviour, where the metalinguistic and poetic functions of language predominate, like many kinds of puns and verbal humour, acronym formation, tip-of-the-tongue phenomena, unorthodox spellings, language puzzles of all sorts, folk etymologising, etc. Many of these have been stock-in-trade of comedians, 'humour page' editors, entertainers, and collectors of linguistic bric-a-brac the world over (e.g., Espy 1975).

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[1] Whoever they may be. I assume, however, that they are (normally) not linguists. While this appears to me to be a safe assumption, it should be pointed out that some conclusions of this study are rather sensitive to the legitimacy of the premise.

Strangely enough, linguists have been reluctant to investigate these phenomena in any detail in an apparent conviction that no interesting and objective insights might be gained from looking into speakers' *language conscious* behaviour. Explicit linguistic judgement has been resorted to only for validation of hypotheses, and not as a generator, or organizer, of language output. I try to show in this paper that certain non-trivial observations can be made of what speakers explicitly know about the phonological structure of their language and of the way this knowledge is manifested in tongue twisters.

The paper is organized as follows: In section I some general remarks on the nature of TTs in English and Polish are provided. A TT-reading experiment is described in section II, and the results are discussed in section III. Finally, section IV holds conclusions and summary. The TTs used in the present experiment are enumerated in the Appendix.

I. TONGUE TWISTERS

One difficulty in analysing speakers' rendition of TTs is the problem of deciding what counts as a legitimate TT in terms of this study. While the case of a lady selling sea-shells on the sea shore is fairly easy to classify, and the inquiry about a wood-chuck would cause little doubt, how should one treat 'rubber baby buggy bumpers', or 'pass these things to the sixth sailor'? The former is normally classified among traditional TTs (e.g., Espy (1975:11) or Urdang (1968:1384) but, intuitively, is not at all difficult to pronounce (cp. the results of the experiment below). The latter is hard on one's tongue, but is an admitted creation of a linguist (Munro MacKenzie 1973:98)[2] and as such is of no use in this article. Neither are dictionary definitions of help here. Dictionaries of linguistics characteristically ignore the issue altogether. Others define TTs as *any* "words difficult to articulate rapidly, usually because of a succession of similar consonantal sounds" (Morris 1975:1353). If taken seriously, this might mean a list of words, for example, with no connected meaning whatsoever. Schourup (1973:587-8) defines the tongue-twister as: "a native-directed grammatical unit [...] that is difficult to produce at certain speeds by virtue of containing patterns of various sorts such that at least one of them is incomplete or in some other way aperiodic". Due to the lack of precision ('certain', 'various sorts', 'some other way') Schourup's definition is far from helpful in actually classifying phonic strings as TTs or non-TTs. In fact, the definition of a TT closest to the one accepted in this work is given in the Great Soviet Encyclopedia, specifically mentioning the fact that 'skorogavorka' (notice the emphasise on speed of speaking) is a "small jocular folklore genre" (Vviedienskiy 1965:253).

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[2] If the sad case of dismissal in Leith (cp. TT No 13) is, as claimed by Munro Mackenzie "a traditional test of drunkenness", then it is definitely too strong, as judged by the number of errors it elicited in both English and Polish speakers in this study

In view of the problems specified above, I have tried, as far as possible, to analyse only those TTs which have been provided, *and referred to*, as tongue twisters in sources other than prononunciation handbooks or EFL manuals. The Polish TTs are those known to me or my (non-linguist) friends since childhood, and thus there is a good chance that they have been current in the language for quite some time. In fact, all Polish informants tested have been familiar with some of them, as well as with a few of English TTs.

The selection of TTs actually used is a subset of all the items I have managed to collect. The choice I made, however, was controlled by strictly technical considerations. That is, I had to keep the number of tested TTs down to a manageable level to ensure a reasonably unproblematic informants' cooperation. For the same reason TTs in the form of longer poems or exchanges have been avoided. Hopefully, this does not affect the validity of conclusions.

The number of Polish TTs considered in this article is only one third of the English. This reflects, I feel, rather nicely the difference in status of the phenomenon in the two languages. As far as I know, there is no common term for a tongue twister in Polish[3] and the notion has a rather low sociolinguistic significance in this country. While the reasons may be interesting, ethnographically speaking, no more will be said about this issue here.[4]

II. EXPERIMENT

The experiment conducted for this study was designed to answer three basic questions about TTs: (1) in what (if any) ways do TT-induced errors differ from spontaneous errors as collected in various corpuses over the last 20 years or so (UCLA, MIT, London-Lund, Dutch, etc.) and from laboratory-induced errors, (2) how do errors made by English speakers compare to those made by Poles when reading English TTs, and (3) what are the similarities and differences between slips produced by Polish informants reading English TTs and those made by them reading Polish TTs. As no native English persons speaking Polish were available, the appropriate test, making procedures symmetrical, could not be carried out.

The procedure was as follows: 40 native Polish speakers, all of them with a post-graduate competence in English read a list of 23 English TTs and 8 Polish TTs, in the order shown in the Appendix. They were instructed to use their habitual tempo and voice quality, and were not allowed to prepare the reading of the text beforehand. The selection and order of the sentences as well as the fact that they were TTs was not disclosed to the speakers. No instruction was given as to what should be done when an error occured. As can be seen, the aim was to ensure as much naturalness as possible to allow speakers a choice of strategies to suit their particular reading and/or speaking habits. In this sense the procedure was radically different from that of a typical slip-inducing experiment, where such variables as the rate of speaking, the amount of text visible to the informant and the output aimed at are strictly controlled.

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[3] *Kakofonia*, or *tautacyzm* are stylistic terms of related, but different, meaning to the one embodied in the word *tongue twister*.

[4] Anecdotally, non-native speakers of Polish may well feel that the language is tongue-twisting as it is, and there is no need to invent anything...

One similarity was that speakers were asked to *read* the material and not *repeat it*, as might, prima facie, be preferable, considering that TTs are predominantly a *spoken* genre. There are two main reasons why repetition was not used as a method of eliciting TTs. First, it imposes a rather heavy strain on the memory of an informant, invariably leading to stops and requests for repetition in longer TTs, thus invalidating the procedure. Second, as has been remarked a number of times in the literature (e.g., Cohen 1966:179), the reading slips are in fact very similar to speaking slips, which suggests that at a certain level the two mechanisms of production may converge.

All 40 readings were recorded and later analysed. The same procedure was applied to 10 native speakers of English, with the obvious expection that they did not read Polish TTs.

The recorded material was analysed in the terms of errors committed and rate of speech. Errors were taken down in their immediate context for each speaker and TT. In case where an error was noticed by the speaker and corrected, no further slips were recorded if they occurred, as it was felt that in such conditions the super-high degree of monitoring on the speaker's part will seriously bias the results, i.e. the number and quality of subsequent errors. The number of such multiple-error sequences was small. Thus, for each speaker-TT slot there was at most one error recorded. This facilitated subsequent calculations.

Only explicit errors were recorded, i.e., either the error was actually commited (regardless of whether it was noticed by the speaker or not) or a new start was made at mid-sentence, even though no external slip had occurred. The latter case was taken to show the undercover workings of the internal monitor (see Laver 1969) and to testify to the actual occurrence of a slip. This was, however, felt to be different from a simple hesitation pause, when a speaker may be involved in a number of activities (e.g. scanning ahead in the sentence) or may quite simply lose concentration for a moment, and there is no evidence of any error in the proper sense. Thus, hesitation with a restart has been counted as a slip, whereas simple hesitation has not (cf. Garnham et al. (1981:806) for a different treatment and some discussion).

The rate of speech was measured with a stopwatch and expressed as syllables per second. This was done to test for relations between the tempo at which a given TT was pronounced and the number of errors elicited. As most definitions of TTs emphasize the speed rate factor, the hypothesis was that there should be some correlation. To avoid additional complication, only the time taken from the beginning of a given TT to the occurrence of an error was counted and then divided by the number of syllables so far uttered. It was, at times, impossible to measure time precisely enough, either because an error occurred too close to the beginning of the sentence or speaker's performance deteriorated to a point where it was virtually meaningless to measure speech rate, or for other, extraneous, reasond. These cases (shown in Table I) were not taken into account in the further procedures of calculating means, variance, etc.

Syllable was chosen as a unit of measurement, as against the foot, for two reasons. First, speakers' performance was not consistent enough to unequivocally decide about the number of rhythmic feet in each case. And second, due to a totally different rhytmic structure of the two languages, no comparison between English and Polish TTs would have been possible. The syllable was thus chosen as the most neutral and convenient unit of measurement.[5]

The time measurement, as described, is, admittedly, rather gross. In an experiment of larger proportions more precise methods of timing would be called for. As it is, however, it may be hoped that unavoidable errors will have a tendency to cancel out. Considering that the conclusions are always drawn from aggregate measures, the imprecisions should not affect them to a serious extent.

III. RESULTS AND DISCUSSION

Some results of the experiment are collected in Table I. This is organized into three columns: English speakers (Eng), Polish speakers reading English TTs (PolEng), and Polish speakers reading Polish TTs (Pol).

The number of tokens in each case is a product of the number of speakers and the number of TTs each speaker read. Considering the number of errors elicited, the anonymous creators of TTs exhibit a fair amount of metalinguistic sophistication, managing to induce one error in five TTs, on the average. This is only 10% points fewer than is normal in carefully planned laboratory

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[5] An informal test showed that the correlation between the two types of measurement for English speakers is indeed rather high ($r = 0.92$, significant at $p < .001$), and it might be expected that similar results would have been obtained had rate been measured in feet per second.

Table I.

PARAMETER	Eng	PolEng	Pol
Number of TTs	23	23	8
Number of speakers	10	40	40
Number of tokens	230	920	320
Number of errors	42	180	74
– as % of tokens	18.2	19.5	23.1
Uncorrected errors	17	64	27
– as % of errors	40.5	35.5	36.5
Whole sentence restarts	7	21	15
– as % of errors	16.7	11.6	20.3
'False corrections'	2	35	8
– as % of errors	4.7	19.4	10.8
Mean rate in sylls/sec	3.6	3.6	4.8
Mean intra-speaker st. dev.	1.11	1.12	1.30
– as % of rate	30.8	30.9	28.2
Inter-speaker st. dev.	0.37	0.45	0.59
– as % of rate	10.1	12.3	12.3
Inter-speaker range	3.0 – 4.1	2.4 – 4.9	3.5 – 6.0
of rate in sylls/sec	(= 1.1)	(= 2.5)	(= 2.5)
Untimed TTs	9	48	25
– as % of tokens	4	5	8

experiments (cf. Baars 1980:313-14). As will be seen, Polish TTs caused speakers more problems, but the difference is not particularly significant, and so I will indulge in no speculations as to the reasons of this fact.

The errors are then tabulated in various configurations. No significance tests have been performed here as the numbers are small, but it is interesting to observe that Poles restarted reading a TT from the beginning after an error had been detected (overtly or covertly) nearly twice that often for Polish TTs as they did for English TTs. This may reflect the fact that in the first three Polish TTs an error normally occurred early in the utterance, and going to the beginning of the word was virtually equivalent to restarting the whole TT. On the whole, it was observed that, as in spontaneous slips of the tongue (cf. Noteboom 1980:94), only the last word started is reiterated in correction, unless there are multiple errors and/or the utterance deteriorates beyond recognition.

The number of uncorrected errors squares nicely with the figure for spontaneous slips, as noted by Noteboom (1980:94), namely 36%.

'False corrections' are those cases where no overt slip appeared, and yet a correction was made (from whatever point). As explained in section II, these are taken to reveal the hidden operation of an internal monitor. A high proportion of such corrections in Poles speaking English may testify to particularly heavy internal editing taking place in this situation. This, in turn, is probably due to speakers' awareness that they are reading particularly difficult texts and to their using a non-native language for this purpose. It is not difficult to envisage an experiment which would allow a separation of the two variables.

As far as the mean values of speech rate are concerned[6], it will be noticed that the English TTs were read at the same speed by both groups of speakers, and the variance around the 3.6 syll/sec mean is virtually identical. While this may have come as a surprise, there is nothing unexpected in the higher average rate for Poles speaking their own language. The difference amounts to 1.2 syll/sec and is statistically highly significant ($p < .001$, $Z = 10.17$).

The average values of intra-speaker standard deviation are similar for all three corpuses of data, meaning that all speakers deviated from their mean rates of reading by a comparable degree. The inter-speaker parameters, however, show that there was significantly more variance in the speed of reading *among Polish* speakers. For example, there is 2.5 syll/sec difference between the slowest and the fastest Polish reader, which is over twice the value for English speakers. While this fact might be explained for English TTs via various degrees of language proficiency on the part of Poles, it is hard to account for the surprisingly large variance among Poles speaking their native tongue.

Correlation tests have been carried out in various configurations. The most interesting results are as follows. There was very strong correlation both in errors ($r = 0.74$, significant at $p < .001$) and speed ($r = 0.96$, significant at $p < .001$) over the 23 English TTs as read by Polish and English speakers. For example, a high average speed (or error rate) value for TT # X as read by Poles predicts with high degree of certainty a similarly high value for the same TT as read by the English. This means, roughtly, that whatever is difficult to pronounce to the English speakers will also be so to the Poles. This, in turn, might be explained in either of two ways. The nature of TTs might be such that they caused malfunction at a relatively low, physiological level of speech encoding. This is, in fact an approach of Garret (1975) and Crompton (1981:711 n 21), where TTs, unlike other slips, are located at just such a level. If this were true, there would be no reason to expect inter-language explanation of the above phenomenon is possible, however. Polish speakers might simply have achieved a level of proficiency in English which approximates that of native speakers to the point of showing similar patterns of error proneness. While there will be some discussion of the 'which level?' question below, I do not feel able to solve the above issue at the moment.

Less interestingly, perhaps, there is correlation in the speed of reading between the English and the Polish texts over the 40 Polish speakers ($r = 0.52$, significant at p < .001). In other words, a person reading fast in English will also probably do so in Polish. But notice that the strength of correlation is lower here than in the previous cases.

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[6] They estimate population means at 95% confidence with an error of 0.22 syll/sec for Eng, 0.14 syll/sec for PolEng and 0.18 syll/sec for Pol.

Finally, *no* significant correlation was found between the speed of reading and error rate, either by speaker or by TT, in either of the three corpuses (cp. Table II). This is, in fact, surprising, considering the common, dictitonary-type, definitions of TTs or naive intuitions. However, there is no unanimity on the issue among the researches. For example, Dell and Reich (1980:283) say: "It has long been known that when people speak too fast they make many slips of the tongue". To which Cutler (1981:570) replies: "...attempts to demonstrate that error rates rise with rate of speach [...] have all, to my knowledge, met with failure".

Intuitively, slow speed should allow more time for internat monitoring and covert screening of errors. It is also reasonable to assume that when there is no time pressure the internal error production itself is low. If this is so, one would expect a relatively error-free flow of speech at slow speeds, other things being equal (and vice versa, as does in fact appear to be corroborated in laboratory-induced slips, where time pressure is essential). I do not know at the moment why this is not the case for the data at hand. The linguists' disagreement mentioned above, however, may well be due to the rather inherently complex interplay between speed and error, which may not be modelled by simple linear regression.

As will be seen in Table II, the TTs which gave speakers most trouble were numbers 4, 7, 13, 17, and 23. The typical errors encountered are: 'critical cricket cricket' (an apparent spoonerism, but doubtless under perseverative influence),'... sells sell-fish' (perseveration), '... dismithes us' (spoonerism), 'Shall sea...' (anticipation), and 'swim, swom, swim' (?).

It is amazing how well this relects the structure of spontaneous slips in terms of the quality of sound substituted. In Shattuck-Hufnagel and Klatt (1980), for example, the MIT corpus is studied, and it turns out that s/š, nasals, /w/, and voiceless stops are sounds most often confused in slips.

Schourup's (1973:590-1) conclusion that "three main sources of difficulty in tongue-twisters [...] are broken patterns, complete but aperiodic patterns, and transitions between similar sounds" is also supported by the data of this study, with, however, the necessary reversal of Schourup's 'sources' in the order of importance (notice the record-holders: 7, 13, 17).

To explain the surprisingly low error count on TT 1 I can only assume that this TT was particularly well known to speakers of both languages, and as such rather immune to error. TTs 2 and 10 probably also come in this category, as do Polish TTs 1 and 2.

In a number of ways tongue twister errors elicited in this study are like genuine, spontaneous slips: similarity of sounds is an important motivating

Table II

TT number	Polish speakers				English speakers			
	rate	SD	% rate	errors	rate	SD	% rate	errors
1	3.7	0.57	14.9	2	3.3	0.43	13.0	2
2	4.8	0.66	13.8	4	4.8	0.84	17.6	1
3	4.0	0.73	18.2	0	4.1	0.47	11.5	1
4	4.7	0.97	20.3	13	4.8	0.76	15.7	2
5	5.6	0.79	13.8	6	5.0	0.91	18.2	4
6	4.3	0.64	14.8	4	4.3	0.78	18.2	1
7	2.7	0.57	19.9	23	2.6	0.44	16.8	3
8	3.2	0.69	20.9	5	3.1	0.47	15.3	0
9	3.0	0.63	20.5	2	3.2	0.46	14.5	1
10	4.2	0.80	18.7	3	4.4	0.61	14.0	0
11	3.3	0.84	25.5	4	3.5	0.51	14.4	3
12	2.8	0.54	19.1	3	3.0	0.71	23.6	1
13	3.5	0.92	26.3	27	3.5	0.57	16.2	7
14	1.9	0.61	30.4	10	1.7	0.36	21.1	1
15	2.3	0.58	24.1	7	2.4	0.35	14.7	2
16	2.9	0.55	18.8	6	2.7	0.41	15.4	0
17	2.7	0.52	19.1	27	2.7	0.59	21.7	4
18	4.6	0.82	17.9	3	4.8	0.93	19.3	1
19	5.0	0.92	18.5	4	4.8	0.94	19.7	0
20	3.5	0.78	21.8	8	3.5	0.57	16.2	3
21	4.5	0.90	19.5	3	5.3	0.63	12.6	0
22	3.1	0.67	21.6	3	3.3	0.48	14.5	1
23	2.3	0.48	19.8	13	2.5	0.31	12.6	4

TT number	Polish speakers			
	rate	SD	% rate	errors
1	3.5	0.75	21.3	7
2	6.4	0.77	12.1	7
3	5.3	1.13	21.5	13
4	5.3	0.49	9.3	7
5	6.3	0.83	13.2	16
6	3.9	0.55	14.3	11
7	3.3	0.78	23.6	6
8	4.6	0.80	17.4	7

factor, slips involving vowels are rare, syllable-initial errors predominate. There are respects in which differences show up, however. For example, three quarters or more of spontaneous slips are anticipations, where a sound is added, deleted, or transposed due to the influence of a sound not yet produced. The remaining slips are perseverations with a small amount of transpositions (cp. Cohen (1966) or Noteboom (1969). Unfortunately, a meaningful comparison with the errors elicited by TTs is made difficult by the fact that a number of TTs are structured in such a way as to virtually hinder any decision about the status of the error. For example, there is no way to decide whether 'sosa' in the Polish TT 4 is result of anticipation, perseveration, or both. However, counting errors of Polish speakers reading English TTs rendered a roughly equal number of perseveration and anticipations, even though I arbitrarily resolved doubtful cases in favour of anticipation. The true proportion, it would appear, must be greater than that obtained by Noteboom (1969:147) and Cohen (1966:179) in their slip-inducing experiments where subjects were asked to read slip-prone texts under time pressure, and perseverations reached 40%. In this connection Noteboom (1969:147) offered a hypothesis that "the percentage of perseverations increases considerably when the speaker is forced to pronounce phrases that are intuitively felt as difficult". If so, it is still far from clear why it should turn out this way.

Perhaps the putative level where TTs are operative in speech encoding might again be involed in explanation. If this is low enough, then possible malfunction will tend to be physiological in nature, perhaps caused by interia of speech organs, hence – perseveration.

There is independent argument in favour of this hypothesis. One surprising result of tongue twister error induction is the number of phonotactically deviant segments produced. Blends of s/š, r/l, and even g/d occur, which never happens in spontaneous slips. In fact, slips are notorious for obeying phonotactic constraints of the language. This has usually been explained as due to their operation prior to the application of allophonic rules. It seems reasonable, then, to assume that TTs are (sometimes) operative at a level yet closer to the surface than those pohonetic detail rules (which may also be conceived of as a filter) and thus avoid their corrective action when an offending ill-formed segment is generated. Schourup (1973:594), for example, mentions /šl, šn, šk/ as results of TT-induced slips. The level would, then, have to be similar to that where classical blends may occur, as these appear to exhibit smililar, phonotactically unorthodox, behaviour (cp. Sobkowiak, forthcoming).

In his 1973 paper, Schourup sets aside cases of TTs based on "transisions between similar nonadjacent segments" like s/š (592) on the grounds that: (1) the slip elicited is always /s/ – – – –→ //š/, regardless of the actual order of the segments in the string, (2) it reflects regular fast-speech processes of English, (3) it is often found in the speech of children, (4) it may generate phonotactically anomalous strings (as mentioned above), and (5) it is virtually obligatory at high speeds.

While I will not argue with (3) and (4), it is fair to point out that: (1) this kind of slip is far from being obligatory, as shown by TT counts for 8, 9, 14, 15; (2) the s/š contrast is not always neutralized in favour of /š/ (in fact, out of 27 slips in TT17, eighteen were like this: Shall /si:/...), (3) fast speech /s/ ----→ /š/ is a regressive process always phonetically motivated by the immediate context, as in 'mi/š/you' (palatalization) or 'thi/š/ship' (assimilation), and hence can have nothing to do with the putative /šaša/ or /šošo/ slips.

Thus, my claim is that there is not enough evidence to hold that "difficulties involving transitions between similar nonadjacent segments do not produce slips of the tongue but instead depend on the application of processes that also apply in acceptable speech" (Schourup 1973:592-3).

IV. CONCLUSIONS

As I hope to have shown in this article, the originators of TTs appear to be well aware of certain phonological properties of their respective languages. It takes a fair amount of metalinguistic sophistication, for example, to discover which sounds, and in which configurations, are prone to cause tongue slips. The alternating pattern of velar and alveolar stops proves to be very successful in eliciting errors in 'critical cricket critic'. The alternation of /s/ and /š/ hardly ever fails to bring about speakers' confusion. The 'tongue twisterers' somehow know that the drive to symmetry will force some speakers to insert an /s/ at the end of the middle word in 'six sick sheiks'. They also know that long words, even devoid of difficult consonant clusters, will cause problems in articulation, like Polish Konstantynopolitańczykiewiczówna. They are aware of the fact that adding syntactic obscurity to phonetic cacophony will strengthen the confusion effect. Such is apparently the case of English TT 11.

Discussing laboratory techniques for inducing errors, Baars (1980:308) states: "Subjects can be induced to make predictable, involuntary speech errors if 1. the are given two alternative plans for one production; and if 2. they are denied the time needed to "sort out" these plans". As has been shown, the creators of TTs apply both principles.

On the whole, it seems to me, the so-called 'naive' language users know much more about language than linguists are normally ready to admit. Tongue twisters furnish interesting evidence to support this claim.

The errors elicited by TTs are quite similar to those occurring spontaneously, with the exception of the apparent predominance of perseveration among the former, which observation may be explained by the putatively low level of speech encoding, and phonetic derivation (?), at which TTs are operative. Incidence of phonotactically deviant segments may be explained along similar lines.

Poles reading English TTs tend to approximate native speakers in error rate, speed of reading and types of errors made. There are differences, however, between the performance of Poles for English and Polish TTs. The speed of delivery is significantly higher for Polish TTs and more errors are made, although it is not the case that those speakers who slip more often than others in one language will tend to do so in the other. This leaves one with a feeling that perhaps the error mechanisms involved are different in the two languages, or the strategies of speakers differ between their native and the foreign language. To what extent this is a viable hypothesis remains to be seen.

APPENDIX

1. She sells sea-shells on the sea shore.
2. How much wood would a wood-pecker peck, if a wood-pecker would peck wood?
3. Round and round the rugged rock the ragged rascal ran.
4. Critical cricket critic.
5. A cup of coffee from a copper coffee pot.
6. A big blue bucket of blue blueberries.
7. Mrs Smith's fish sauce shop seldom sells shell-fish
8. Shoes and socks shock Susie.
9. She sewed shirts seriously.
10. How much wood would a wood-chuck chuck if a wood-chuck would chuck wood?
11. Of all the saws I ever saw I never saw a saw saw as this saw saws.
12. Good blood, bad blood.
13. The Leith police dismisseth us.
14. Six sick sheiks.
15. Six thick thistle sticks.
16. Twin-screw steel cruiser.
17. Shall she sell sea-shells?
18. Rubber baby buggy bumpers.
19. Betty Botta bough a bit of bitter butter.
20. Where rolled the round roll Robert Rowley rolled round?
21. Peter Piper picked a peck of pickled peppers.
22. A big black bug bit a big black bear; a big black bear bit a big black bug.
23. Swan swam over the sea; swim, swan, swim; Swan swam back again, well swum, swan!

1. W Szczebrzeszynie chrząszcz brzmi w trzcinie.
2. Stół z powyłamywanymi nogami.
3. Konstantynopolitańczykiewiczówna.
4. Sucha szosa po suszy.
5. Król Karol kupił królowej Karolinie korale koloru koralowego.
6. Szedł Sasza szosą suchą.
7. Ząb, zupa, dąb; dąb, zupa, ząb.
8. Ząb – zupa zębowa, dąb – zupa dębowa.

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ON DERIVATIONAL AND PHRASAL ADVERBIALS OF MANNER

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This paper compares the usage of derivational and phrasal adverbial expressions of manner in several related languages and points to possible translational and learning problems due to peculiarities of selection in one language or another.

English, French, Italian and Spanish use both simple adverbs of manner (ex. *well*) and derivational adverbs of manner formed by adding a suffix to an adjective (ex. *poorly*). German uses the same form for both adjective and adverb. One could consider that for the adverb in German a zero suffix is added to the root, but rather than make that argument here it will simply be stated that for purposes of comparison the German adverbs will be classified as derivational. All five languages form adverbial expressions of manner consisting of a preposition plus a noun phrase (ex. *with pleasure*).

Grammars of individual languages, except for German, state how derivational adverbials of manner are formed, but rules for selecting derivational or phrasal adverbials are either non-existent or hard to come by. There are language-specific constraints, and while there may be a large degree of one-one correspondence, the translation of an adverbial of manner construction into another language using the same adverbial type can lead to ungrammatical or unnatural results. Choosing the wrong type can even cause a semantic change.

In English it is natural to say *John waited calmly*, but in Spanish the translation of the foregoing as *Juan esperó calmamente* is unacceptable. Conversely, *John waited with calm* is questionable, and *Juan esperó con calma* is normal.

Some other questionable, non-occuring (at least non-occuring in some idiolects), or extremely low frequency items in everyday, colloquial American English are *difficulty, sinisterly*, and *desirously*, as in *John worked difficulty, John walked through the night sinisterly*, and *John looked at the girl desirously*. The Spanish cognates *dificilmente* and *siniestramente*, using the same adverbial type shown in English, are acceptable translations of the two statements in English.

Are the examples just cited merely rare but prominent cases evident in English and Spanish only, or is the problem more pervasive, affecting languages other than English and Spanish? In order to answer this question, lists of sentences in English containing adverbials of manner were given to native speakers of the other languages mentioned here with instructions to translate the adverbials into their own language.

There were two lists, identical except that one list contained only derivational adverbials with the suffix *-ly*, all presumed to be acceptable in English. The other list contained only phrasal adverbials consisting of a preposition followed by a noun phrase. This second list was made by arbitrarily converting the derivational expressions to phrasal constructions without regard for acceptability or meaning. The purpose of two lists, identical except for adverbial type, was to account for translational pressures of English. The responses to the two lists from each informant were merged and categorized, and frequencies were computed.

Before turning to the results of the elicitation and the conclusions based on those results, let us consider some peculiarities and problems of adverbials of manner in English.

We have noted that *John waited calmly* is grammatical. Now, considering the other possibility, *John waited with calm*, we take the position that the phrasal adverbial is ungrammatical, or extremely rare. And while we have noted that *John looked at the girl desirously* is not grammatical, we now point out that *John looked at the girl with desire* containing a phrasal adverbial is grammatical. We have seen, then, lexical items in English behaving in exactly opposite ways under a transformation of adverbialization.

But in the case of *John won easily* and *John won with ease* it seems that both utterances may occur freely, and with the same meaning. Some other pairs of this type are:

John drives carefully.
John drives with care.
John played the role feelingly.
John played the role with feeling.

John acted justly.
John acted with justice.

While meaning seemed to remain constant in each of the foregoing pairs, let us turn to some other pairs:

John confessed his sins openly.
John confessed his sins with openness.

John told the truth freely.
John told the truth with freedom.

John told the story a second time forgetfully.
John told the story a second time with forgetfulness.

In each of the pairs there seems to be a possible significant meaning difference. If John confessed his sins openly, he might have confessed them to anyone who would listen, but if he confessed with openness, he may have been before only his priest. If John told the truth freely, he did so willingly and without hesitation, but if he told the truth with freedom, there was no danger of reprisal. And if John told the story a second time forgetfully, he may have told the story again without a flaw or hesitation but failed to recall that he had already entertained his listeners. If John told the story a second time with forgetfulness, it may have been to a second audience and he forgot essential parts.

Two other sets of examples with one sentence in common in each pair seem to display sameness in meaning on one occasion and difference in meaning on the other:

John lived poorly.
John lived in poverty.

Here John did not have sufficient resources to live well, whichever sentence is chosen.

John lived poorly.
John lived with poverty.

In the first instance John had insufficient resources; while in the second he either had insufficient resources and tolerated poverty, or perhaps he had resources but resided amidst poverty, as one who lives with death on unfortunate occasions. Here we have two meanings in phrasal adverbials depending on selection of the prepositions.

The foregoing examples should make it clear that selection of the adverbial of manner type is not a simple matter. While stylistic or dialectal differences might bring about some disagreement with the examples cited above, not to mention idiolectal differences, there seems to be no hesitation on the part of individual native speakers to rule that either type of adverbial may occur in a given context with the same meaning, that one type or the other is ungrammatical, or that either may occur, but with a meaning difference. Also, there are occasions when both types seem possible, but one seems to be preferred, as in:

John laughed heartily.
John laughed with hardiness.

John treated the matter laughingly.
John treated the matter with laughter.

John performs ably.
John performs with ability.

In these pairs the first sentence seems to be preferred. In the following two pairs the reverse is the case:

John looked at me questioningly.
John looked at me with question.

John behaved reasonably.
John behaved with reason.

While it is not the purpose of this paper to discover and formulate the rules held in the mind to select adverbial type, but rather to contrast the application of these rules, it may be of interest to point to the possible nature of these rules, which may be based on syntax, the accident of morpheme cooccurrence, or semantics.

The phrasal adverbial may not in English precede the verb. No one, if the writer may dare, would accept **John with desire looked at the girl.* Terminal junctures, though, might make the following acceptable: *John, with desire, looked at the girl.* Nor may the phrasal adverbial occur after a transitive verb and before its object, as in **John played with perfection the piano.*

Some derivational adverbials may precede verbs, as in *John quickly left the room* and *John lovingly stroked his dog*, but others cannot, as in **John reasonably acted.* And, as in the case of the phrasal adverbials of manner, the derivational adverbials may not occur between a transitive verb and its object, as in **John left quickly the room.*

Both types of adverbials may be modified by elements expressing degree, as in *John waited very calmly* and *John looked at the girl with great desire.* Of course, only the phrasal type may contain a modifying clause, as in *John looked at the girl with the greatest desire he had ever experienced.*

Where selection does not depend on syntactic constraints, then morphological, semantic, or stylistic constraints must be involved.

Using the 1000 words occurring most frequently on the Thorndike and Lorge wordlist as a source of words to form adverbials of manner, the writer selected adjectives and words from which adjectives could be derived, and nouns and words from which nouns could be derived, and used them to form adverbials of manner.

The following ungrammatical derivational adverbials resulted: *alonely, bigly, hardly*, (meaning diligently), *manlily, rightly* (as in **John worked the problem rightly*), *afraidly, fastly*, and *illly*. Suppression of the *-ly* suffix, (or replacing it with zero), produces the following grammatical constructions: *alone*, (*John works alone*), *big* (*John talks big*), *hard* (*John works hard*), *fast* (*John works fast*), and *ill* (*John thinks ill of me*).

The following ungrammatical phrasal constructions resulted from the same word source: *with bigness, with dearness, with hardness, with highness, with knowledge, with heat, with prettiness, with quickness, with senselessness, with shadiness, with softness, with straightness*, and *with suddenness.*

When certain nouns in the above ungrammatical constructions are modified, the phrasal adverbials become acceptable, and they are the only means of expressing the semantic intention of the speaker, as in: *with bigness of heart, with unforgetable dearness, with considerable knowledge*, etc.

It is not possible to modify *hardness, highness, movement, fame*, and *straightness* and produce grammatical adverbials matching *hard, highly, movingly, famously*, and *straightly* because the nouns are not semantic matches for the adjectives from which adverbials are derived.

The compilation of the responses of native speakers to the two lists of adverbials revealed that of the 72 derivational adverbials of manner in English with the suffix *-ly* and the one item with a zero suffix (*alone*) representing 100% in close translational equivalents of English there was a 78% match in German with adjective-adverb forms, a 48% match in French with forms taking the suffix *-ment*, a 48% match in Spanish with forms taking *-mente*, and a 40% match in Italian with forms ending in *-mente.*

If one included in the calculations above more distant translational equivalents for English, such as *magnifiquement* for *beautifully, leggermente* for *laughingly*, and *tranquilamente* for *peacefully*, the derivational matches with English increase to 56% for French, 63% for Italian, and 60% for Spanish.

These figures, if they are typical of a more or less complete data set, mean that if one had a translating machine programmed with the rules of English, there would be an error rate with close translational items of 60% for Italian, 52% for French and Spanish, and 22% in German.

On only 13 items out of 73 did all five of the languages considered here agree in usage of derivational adverbials of manner. This is only an 18% match.

In English, phrasal adverbials are possible for 26 of the 73 items which take the suffix *-ly*. Not counted are phrasal adverbials whose meaning is not the same as that of the derivational form. Since English items with the *-ly* suffix representing 100% were matched by considerably less than 100% in each of the other languages, it is not suprising to find that each of the other languages also has phrasal adverbials matching a number of the *-ly* forms in English. In several instances, though, other languages, according to these particular informants, use neither the derivational nor the phrasal adverbials comprising a preposition and a noun phrase. Examples include *en riant* and *riéndose* for *laughingly*, *en souriant* for *smilingly*, *er wartete voller Hoffnung* for *hopefully*, *fragend* for *questioningly* and *faceva il proprio dovere* for *dutifully*.

The percentage of phrasal adverbials used by the informants in giving close translational equivalents of English were as follows: French 48% (49% including more distant equivalents), German 33%, Italian 14% (15% including more distant equivalents), and Spanish 58% (60% including more distant equivalents).

Let us return to the question earlier in this paper: Are examples of non-matching adverbials of manner across language boundaries merely rare, or is the problem more pervasive? The data discussed here indicate that the non-matches are not rare and that the complication is considerable. A detailed investigation of the occurrence of each type of adverbial of manner in each language would seem to be in order.

REFERENCE

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SCRAMBLING AND THE POLISH WORD ORDER. AN ALTERNATIVE HYPOTHESIS.

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1. Introduction

The standard approach to the phenomenon of scrambling in Polish is to treat it as an instance of *Move alpha.* The Polish word order is considered, within this framework, to be cannonical S-V-O at D-structure, and its apparent laxity is regarded as only a surface phenomenon. The variety of sentence positions that noun phrases can occupy at S-structure results from the movement processes, subject to general constraints.

The present paper offers an alternative account in which the Polish word order is taken to be not only superficially but also underlyingly *free*, and scrambling has nothing to do with the rule *Move alpha.*

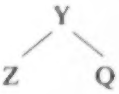
2. Scrambling as an instance of Move alpha

The assumption that scrambling is an instance of Move alpha has important consequences. First of all, the requirement of the Theta Criterion must be met in that the movement is only to non-theta positions. If alpha were moved to a theta position, the chain formed by the movement would be marked for two theta roles which is a clear violation of the Theta Criterion. In Polish, unlike in English, there are no overt expletives which would at S-structure mark non-theta positions. Such positions, if not filled with an expletive, are landing sites for moved noun phrases. Plausibly, the distinction theta vs. non-theta positions is void in Polish, and there are only theta positions in this language. The consequence of this is that the structure of the Polish sentence reflects the argument- predicate structure. There are as many argument positions (A-positions) as there are arguments semantically selected by the verb, and the theta roles to be assigned. As a result, there cannot be, as argued by Zabrocki

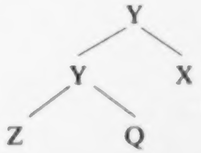
(1981), any NP movement in Polish. To fulfil the requirements of Emonds' Structure Preserving Constraint and the Projection Principle, the NP movement is only from one A-position to another A-position. If all A-position are thematic in Polish, the violations of the Theta Criterion are inevitable in case of NP movement. Hence, any analysis of scrambling as an instance of syntactic NP movement cannot be maintained.

It is different with the analysis of scrambling as an instance of Wh-movement. Here, the theoretical problems mentioned above are overcome since Wh-movement is an instance of movement to Ā positions. Such positions are adjoined positions and are not limited by the Structure Preserving Constraint and the Projection Principle. Typically, they are assumed to be Chomsky- adjoined to the existent node in the manner illustrated below, where X is adjoined to Y:

a)



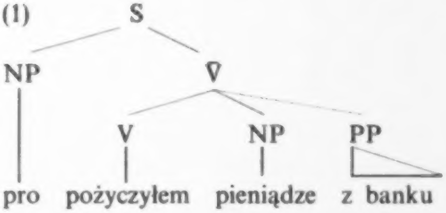
b)



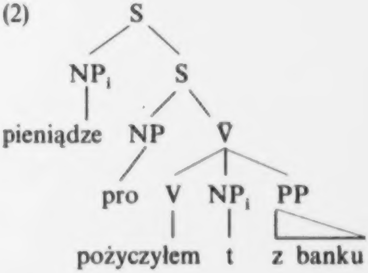
Ā-positions are not subcategorized and not associated with the predicate-argument structure, hence non-theta. Any movement into an Ā-position is not thus a violation of the Theta Criterion, with the chain of the movement (if the chains are extended to Ā-chains, cf. the discussion in Chomsky (1982), Chomsky (1986), Brody (1984)) associated with a unique theta role.

Regarding scrambling as movement necessitates the recognition of traces in (2) below, which is a scrambled structure derived from the D-structure form (1):

(1)



(2)



In the examples (1) and (2) as well as in all the examples in this section the INFL node is disregarded. If (2) is derived from (1) by Wh-movement the trace present in (2) has the status of a variable with regard to the Binding Theory which, as will be shown later, has important consequences. Notice, that the analysis of scrambling as NP movement cannot be sustained also because the NP trace in (2) would be in a Case-marked position, which is contradictory to the tenets of the GB theory.

Thus, the standard assumption about scrambling in Polish is that it is a case of adjunction to Ā-positions, a subcase of Wh-movement. The acceptance of such a stand must entail the rejection of any of the hypotheses listed below:

I. Scrambling is the substitution movement by trace leaving to base-generated A-positions.

II. Scrambling is the adjunction movement by trace leaving to base generated A-positions.

III. Scrambling is the movement not by trace leaving to Ā-positions or to A-positions.

Insofar as the suggestion that all A-positions in Polish are thematic is true, the hypothesis I must be rejected. The empty A-positions in the D-structure, if existent, must be thematic, and the movement by substitution would violate the Theta Criterion. The hypothesis II is different from I only in that the landing sites for scrambling are base-generated, adjoined A-positions.Nevertheless, the Theta Criterion is violated here as well with the movement to theta positions. In our view, the hypothesis III should be rejected without further discussion if the Trace Theory holds unconditionally. If scrambling is a syntactic movement process, the possibility of leaving no traces by scrambling does not arise.

Under the hypothesis II, the status of the trace in (2) above, is not clear. It is probably an anaphor since the movement of this kind resembles the NP movement in, for example, English raising structures. As convincingly argued in Willim (1986), anaphors in Polish should be bound within the domain of Tense, where *bound* means *subject bound*. The trace in (2) is not bound in this sense, hence the violation of the binding condition A.

It thus becomes clear that of the four hypotheses discussed so far, only the one taking scrambling to be movement by adjunction to Ā-positions can be sustained, given the principles of such modules of Universal Grammar as Theta Theory, Case Theory and Binding Theory and given the rightness of the Trace Theory.

The four hypotheses have one thing in common; they all assume movement. If then, scrambling is a movement process, it can only be movement to adjoined Ā-positions. The Binding Theory provides persuasve arguments that scrambling is in fact an instance of syntactic Move alpha. In the next section, these arguments will be confronted with the alternative approach in which scrambled phrases are considered to be base-generated in A-positions.

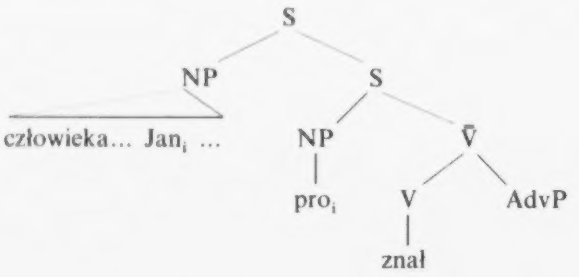
3. Scrambling and The Binding Theory

Willim (1986) argues that the contrast between (3) and (4) below, may be attributed to the interaction of scrambling movement and the operation of the binding principles:

(3) *pro$_i$ znał od dawna człowieka, którego Jan$_i$ spotkał wczoraj.
(he)$_i$ has known for long the man whom John$_i$ met yesterday.
(4) Człowieka, którego Jan$_i$ spotkał wczoraj, pro$_i$ znał od dawna.
The man whom John$_i$ met yesterday, (he)$_i$ has known for long.

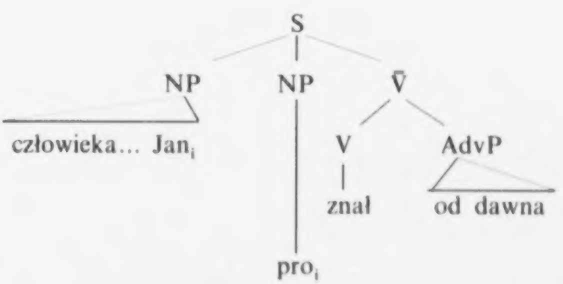
(3) is unacceptable, while (4), with the relative complement clause scrambled to the front is well-construed. In (3) the empty subject pro binds the R-expression in the relative clause and the binding condition C is violated. In (4) however, the object phrase is scrambled to an Ā-position, which is adjoined to S, and pro does not bind the R-expression since it does not c-command it like in (5) below:

(5)



If the movement was not to an adjoined Ā position, like in (6) below, then (4) should also be ill-formed with pro c-commanding, hence A-binding the R-expression, in violation of the binding condition C.

(6)



The second argument for the movement analysis of scrambling provided by the Binding Theory is that scrambling resembles Wh-movement in so called strong cross-over. The relevant examples are given below:

(7) *Kogo$_i$ ona$_i$ lubi t_i?
Who does she like?
(8) *Marka$_i$ on$_i$ lubi t_i
Mark he likes.

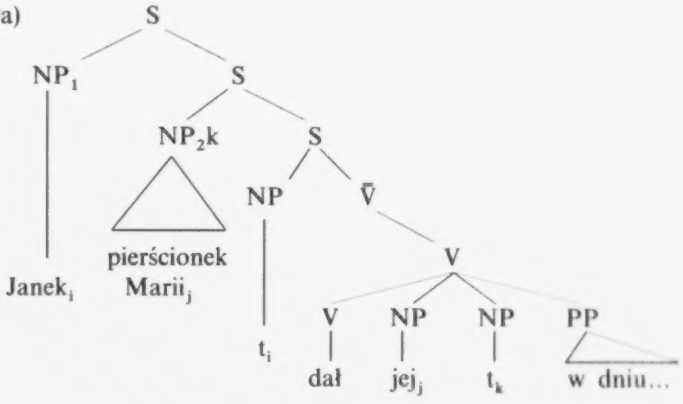
(7) and (8) are both condition A violations with the variables A-bound by the pronouns *on* and *ona* in (8) and (7) respectively.

Nonetheless, the account of scrambling as movement to adjoined $\bar{A}$-positions is not unproblematic. Consider the following pair of sentences:

(9) Janek pierścionek Marii$_i$ dał jej$_i$ w dniu zaręczyn.
John Mary's ring gave her on the day of engagement.
John gave Mary's$_i$ ring to her$_i$ on the day of engagement.
(10) *Janek jej$_i$ pierścionek Marii$_i$ dał w dniu zaręczyn.
John her$_i$ Mary's$_i$ ring gave on the day of engagement.

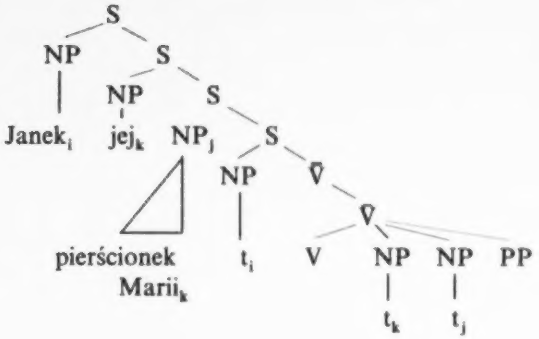
The structure of (9) may be represented within this approach as:

(9a)



NP$_1$ and NP$_2$ are both scrambled to $\bar{A}$ positions, hence the variable t_i is not A-bound, and the condition C is satisfied. In (10) however, whose structure is (10a) below, the situation is analogous but (10) is, anyway, ill-construed. If both t_i and t_k stay unbound, there is no violation of the condition C. The variables cannot be bound since the phrases coindexed with them, i.e. *Janek* and *jej* are adjoined $\bar{A}$ positions. The pronoun cannot bind the coindexed R-expression *Marii* since they both are in $\bar{A}$ positions. The unacceptability of (10) cannot thus be explained in terms of the binding Theory if (10a) is the correct S-structure of (10).

(10a)

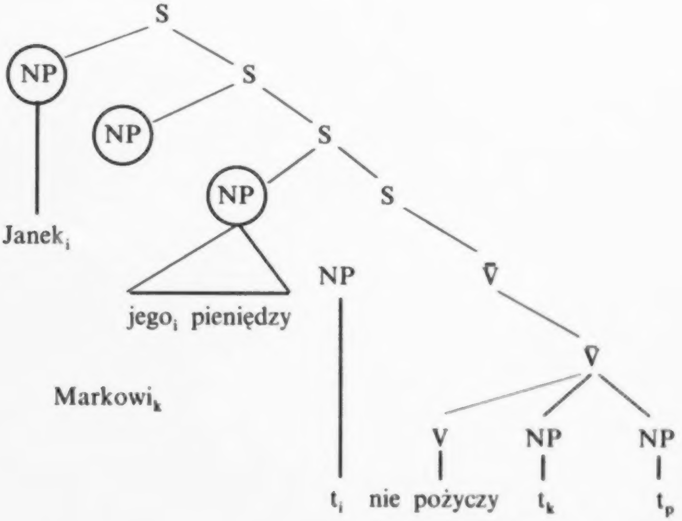

S
NP
S
NP
S
Janek$_i$
jej$_k$
NP$_j$
S
NP
$\bar{V}$
$\bar{V}$
pierścionek
Marii$_k$
t_i
V
NP
NP
PP
t_k
t_j

There is a similar situation in (11) below:

(11) *Janek$_i$ Markowi$_k$ jego$_i$ pieniędzy nie pożyczy
John$_i$ to Mark his$_i$ money will not lend

The structure of (11) after the movement would be (11a):

(11a)

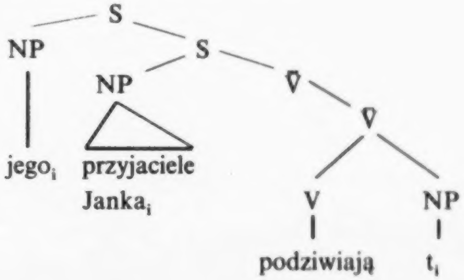

S
NP
S
NP
S
NP
S
Janek$_i$
jego$_i$ pieniędzy
NP
$\bar{V}$
Markowi$_k$
$\bar{V}$
V
NP
NP
t_i
nie
pożyczy
t_k
t_p

The encircled scrambled phrases are in $\bar{A}$ positions, thus cannot take part in A-binding. None of the variables t_i, t_k, t_p is here A-bound, which would give rise to the condition C violation and explain the unacceptability of (11). Naturally, the trace of the NP *jego pieniędzy* may not carry an index of its subject (*jego*) since the subject is not the head of the phrase, and thus cannot transmit its index to a higher projection (cf. Lasnik and Saito (1984:251)).

Consider also (12) below:

(12) *Jego$_i$ przyjaciele Janka$_i$ podziwiają.
Him$_i$ John's$_i$ friends admire
John's friends admire him.

(12a)



In (12) the trace t$_i$ stays unbound; it cannot be bound by *Janka* which does not c-command it (a maximal projection NP intervenes). Obviously, *jego* which is scrambled to an Ā-position does not improperly bind either the R-expression or its own trace. Hence, if the representation of (12) in (12a) is correct, there is no explanation for the unacceptability of (12) within the Binding Theory.

Consider finally (13) below which is different from (4) above only in that the subject pronoun is phonetically spelt-out. (13) though, unlike (4) is unacceptable.

(13) *Człowieka, którego Jan$_i$ spotkał wczoraj, on$_i$ znał od dawna.
The man whom John$_i$ met yestreday he$_i$ has known for long.

If the argument evoked to account for the correctness of (4) held more generally, also (13) should be acceptable with the R-expression in an Ā-position free.

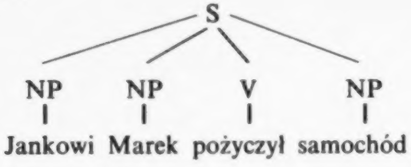
The above examples suggest, that the analysis of scrambling as adjunction to Ā-positions appears remarkably inadequate in important cases. The alternative which this paper wants to defend is that "*scrambled phrases*" are base generated in their surface A-positions. Because the notion of scrambling associates itself with the movement, and the movement will, from now on, be rejected, the term *scrambled* will be put in inverted commas.

4. *Scrambling as a non-movement process*

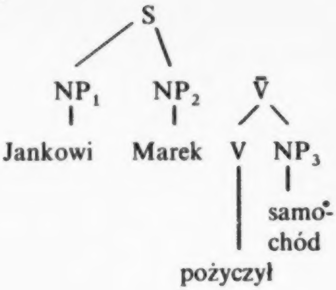
In principle, one could think of three different ways of representing 'scrambled' phrases in Polish. They are illustrated below in (14a), (14b) and (14c), the structures of (14):

(14) Jankowi Marek pożyczył samochód.
To John Mark lent the car.

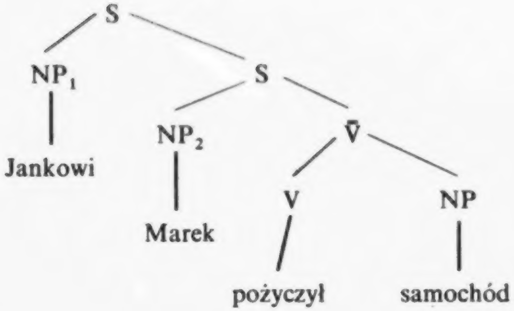
(14a)


S
NP
NP
V
NP
Jankowi
Marek
pożyczył
samochód

(14b)


S
NP$_1$
NP$_2$
$\bar{V}$
Jankowi
Marek
V
NP$_3$
samochód
pożyczył

(14c)


S
NP$_1$
S
Jankowi
NP$_2$
$\bar{V}$
Marek
V
NP
pożyczył
samochód

(14a) is a "flat" structure. Crucially for the Binding Theory, all the noun phrases in (14a) c-command one another. In (14b) only 'scrambled' phrases c-command each other, the verbal projection $\bar{V}$ prevents the third NP$_3$ from c-commanding NP$_1$ and NP$_2$. In (14c) 'scrambled' phrases are in positions adjoined to S, and only NP$_1$ c-commands NP$_2$ but not vice versa. Obviously, there are no traces in the representations above as there was no movement involved in their derivation.

Consider first (14a), in which there is no verbal projection higher than V^0. It turns out, that confronted with acceptable examples like (15) below, the representation (14a) cannot be sustained:

(15) Janek$_i$ Piotra$_j$ samochód oddał mu$_j$ w zeszłym tygodniu.
John$_i$ Peter's$_j$ car gave back to him$_j$ last week.
John gave back Peter's car to him last week.

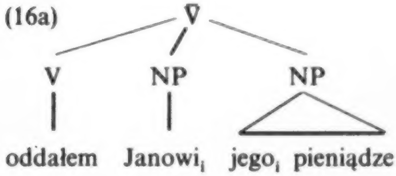
If the structure of (15) was "flat", the post verbal pronominal *mu* would improperly bind the R-expression *Piotra* in violation of the condition C. Due to the screening from a verbal projection $\bar{V}$, the pronoun would not bind the R-expression in (15), as required, if its representation was like in (14b) or (14c).

Consider now the examples (16 – 19) below:

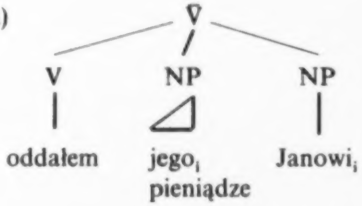
(16) Oddałem Janowi$_i$ jego$_i$ pieniądze.
(I) returned John$_i$ his$_i$ money.
(17) ?*Oddałem jego$_i$ pieniądze Janowi$_i$.
(I) returned his$_i$ money to John$_i$.
(18) *Oddałem mu$_i$ Jana$_i$ pieniądze.
(I) returned him$_i$ John's$_i$ money.
(19) *Oddałem Jana$_i$ pieniądze jemu$_i$.
(I) returned John's money to him$_i$.

The internal structures of the verbal projections in (16 – 19) may be like in (16a – 19a) respectively:

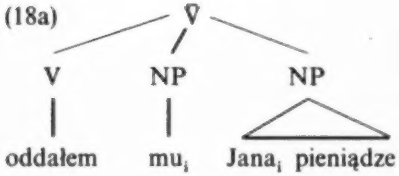
(16a)


V̄
V
NP
NP
oddałem
Janowi$_i$
jego$_i$ pieniądze

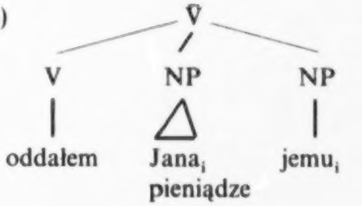
(17a)


V̄
V
NP
NP
oddałem
jego$_i$
pieniądze
Janowi$_i$

(18a)


V̄
V
NP
NP
oddałem
mu$_i$
Jana$_i$ pieniądze

(19a)


V̄
V
NP
NP
oddałem
Jana$_i$
pieniądze
jemu$_i$

(16) is correct since *jego* does not bind *Janowi* because it fails to c-command it (18) and (19) are cases of the condition C violations with the pronominals binding the R-expressions. The unacceptability of (18) and (19) indicates that the internal structure of the verbal projection is "flat" with all the noun phrases c-commanding each other.

It seems, that the relative unacceptability of (17) cannot be drawn from the violation of the binding conditions. (17) is on a par with examples like (20) below, contrasted with (21):

(20) ?*Maria dała jego$_i$ pieniądze Jana$_i$ siostrze.
Mary gave his$_i$ money to John's$_i$ sister.
(21) Maria dała Jana$_i$ siostrze jego$_i$ pieniądze.
Mary gave John's$_i$ sister his$_i$ money.

What bars indicated interpretations in (17) and (20) may, for example, be some surface structure constraint similar to Zabrocki's Unique Structural Identification Requirement (Zabrocki:forthcoming).

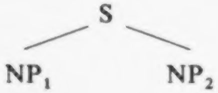
Notice now, that in the examples (22–27) below, the noun phrases 'scrambled' to S must c-command each other if the unacceptability of these sentences is to be attributed to the violations of the binding conditions B and C.

(22) *Jana$_i$ on$_i$ lubi. – condition C violated
John$_i$ he$_i$ likes.
(23) *Jego$_i$ Jan$_i$ lubi. – conditions B and C violated
Him$_i$ John$_i$ likes.
(24) *Jan$_i$ jego$_i$ przyjaciół podziwia. – cond. B violated
John$_i$ his$_i$ friends admire.
(25) *Jego$_i$ przyjaciół Jan$_i$ podziwia. – cond. B violated
His$_i$ friends John$_i$ admires.
(26) *Jana$_i$ przyjaciół on$_i$ podziwia. – cond. C violated
John's$_i$ friends he$_i$ admires.
(27) *On$_i$ Jana$_i$ przyjaciół podziwia. – cond. C violated
He$_i$ John's$_i$ friends admires.

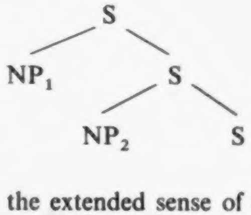
It is assumed here, after Willim (1986), that the binding conditions in Polish are as follows:
A: anaphor must be bound within the domain of Tense,
B: pronominal must be free within the domain of Tense; where *bound* means *bound by subject*, and *free* means *not bound by subject*.
C: R-expression must be free, where *free* means *not bound by anything*.

For the noun phrases in (22–27) to c-command each other the structure must be, in a relevant, part like a) not like b) below:

a)



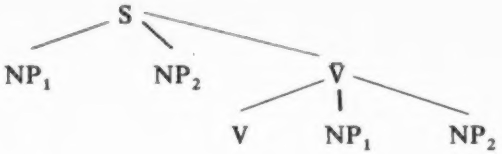
b)



The option b) is not even available under the extended sense of c-command since NP$_2$ is not the head of S (cf. Chomsky 1981:166).

The internal structure of the verbal projection and the structuring of the 'scrambled' phrases are then alike, and the two may be put into a template (28):

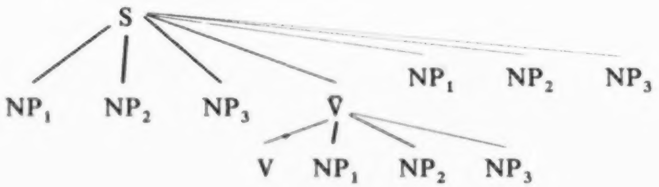
(28)


S
NP_1
NP_2
$\bar{V}$
V
NP_1
NP_2

Certainly, both noun phrases labelled in (28) as NP_1 represent the same argument and cannot co-occur in a sentence. Neither can the two NPs labelled as NP_2.

The maximal number of argument positions selected by the verb is in (28) two. Including now in the template the external argument positions, its form should change into (29):

(29)

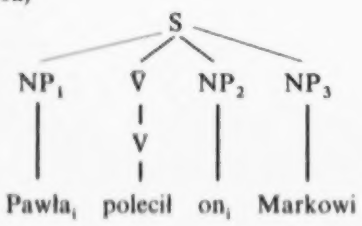

S
NP_1
NP_2
NP_3
$\bar{V}$
NP_1
NP_2
NP_3
V
NP_1
NP_2
NP_3

The presence of the three possible argument positions in a sequence as right-branch sisters to $\bar{V}$ in (29) is motivated by the need to avoid the "crossing of branches" in structures of sentences like (30) below, where a postverbal external argument precedes one of the internal arguments:

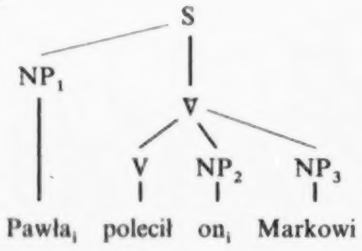
(30) *Pawła$_i$ polecił on$_i$ Markowi.
Paul (he)$_i$ recommended to Mark.

The structure of (30) must be (30a), not (30b):

(30a)


S
NP_1
$\bar{V}$
NP_2
NP_3
V
Pawła$_i$
polecił
on$_i$
Markowi

(30b)

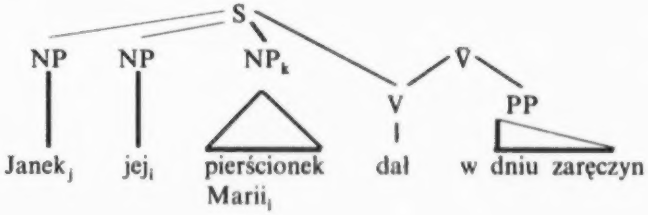

S
NP_1
$\bar{V}$
V
NP_2
NP_3
Pawła$_i$
polecił
on$_i$
Markowi

In (30b) the R-expression is not bound, hence there is no explanation of the unacceptability of (30) in terms of the Binding Theory.

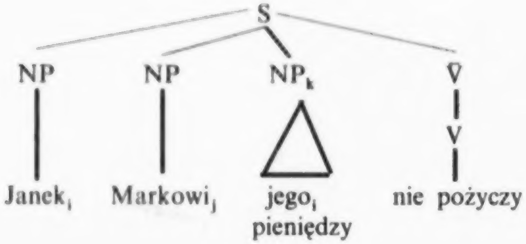
It should be clear, that the role of the template (29) is purely expository. It represents the options in ordering of noun phrases in a Polish sentence. What it shows is the freedom of argument order in a structure. Notice, that all possible linear orderings of arguments may be derived from (29).

Adopting the approach to scrambling advocated here, the explanation of the unacceptability of the examples (10), (11), and (12) above, becomes straightforward. Their S-structures will now be (31), (32), and (33) below:

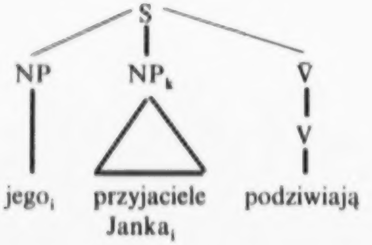
(31)


S
NP
NP
NP$_k$
$\bar{V}$
V
PP
Janek$_j$
jej$_i$
pierścionek
Marii$_i$
dał
w dniu zaręczyn

(32)


S
NP
NP
NP$_k$
$\bar{V}$
V
Janek$_i$
Markowi$_j$
jego$_i$
pieniędzy
nie pożyczy

(33)

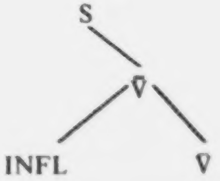

S
NP
NP$_k$
$\bar{V}$
V
jego$_i$
przyjaciele
Janka$_i$
podziwiają

In (31) and (33) there are violations of the binding condition C with the R-expressions bound. In (32) the subject *Janek* binds the pronominal *jego* in violation of the binding condition B.

The explanation of the unacceptability of (13) contrasted with a well-formed (4) is not straightforward and requires some stipulation. It may be postulated, that the above contrast arises from the difference in structural configurations between (4) and (13) related to the content of the subject NP node, i.e. filled with a lexical or empty pronominal.

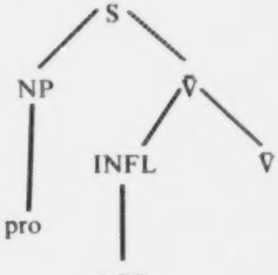
Let us suppose that we adopt Bouchard's view on the status of the category INFL (Bouchard 1983: 143). INFL, within this approach, is not an independent syntactic node immediately dominated by S, which is essentially the position taken by Chomsky (1981), but it is attached to the V in the lexicon and then percolates to the V̄, and forms with it a complex node. This may be represented as in (34) below:

(34)

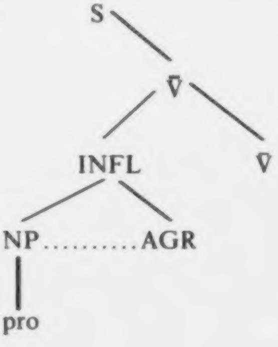


The empty subject in (4) is pro which must be locally determined by AGR, which is a part of INFL. The local determination, which may be understood as government by AGR (cf. Chomsky 1982:85) is needed for the transfer of features to pro. If the local determination of pro is under the government from AGR, and INFL is a barrier to government, the subject NP node cannot be a sister node to V̄, like in (35) below, but a sister to AGR like in (36):

(35)

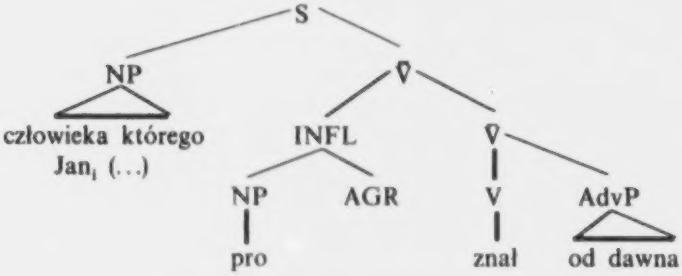


(36)



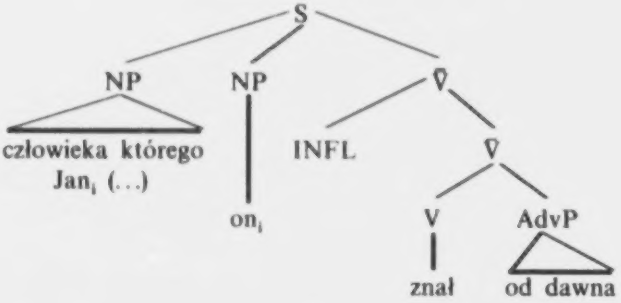
Following these proposals, the structure of (4) should be represented as (37) below:

(37)


S
NP
człowieka którego
Jan$_i$ (...)
V̄
INFL
NP
pro
AGR
V̄
V
znał
AdvP
od dawna

The pronoun *on* in (13) does not need determination from AGR, and its position is attached to S, like in (38) below:

(38)


S
NP
człowieka którego
Jan$_i$ (...)
NP
on$_i$
V̄
INFL
V̄
V
znał
AdvP
od dawna

It becomes clear now why (4) is acceptable with the R-expression free (pro does not c-command the R-expression) and (13) is unacceptable with *on* binding Jan in violation of the condition C.

5. *Conclusions*

The main aim of the above discussion was to advocate a non-movement hypothesis on the nature of the phenomenon of scrambling in Polish. It was argued that 'scrambled' phrases are base-generated in A-positions. Such an approach offers solutions to the problems raised by the examples (10), (11), (12) and (13). The standard movement analysis fails in such instances and generally, appears helpless whenever 'scrambled' phrases happen to be noun phrases with pronominal subjects co-indexed with a 'scrambled' R-expression.

There remain still many unresolved problems in this connection. For example, there are troublesome cases of 'anaphor scrambling' like in (39) below, where the anaphor evidently improperly A-binds the R-expression, but without consequence for the acceptability of (39):

(39) Siebie$_i$ Janek$_i$ uważa za najmądrzejszego.
Himself$_i$ John^1 regards as most intelligent.
John considers himself to be most intelligent.

For the time being, no explanation of this phenomenon can be suggested within the approach defended here. Also, it should be investigated in detail whether the proposals regarding scrambling presented above could have a bearing on the analysis of Wh-extraction in Polish.

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VERBS OF SENSORY COGNITION: A CONTRASTIVE ANALYSIS OF A LEXICAL FIELD IN THE LEXICON OF POLISH AND ENGLISH

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1. The present analysis of verbs of sensory cognition (henceforth: VSC) in the lexicon of Polish and English, is based on the claims of componential analysis and the thesis of restricted linguistic universalism (cf. Lyons 1977:33). Accordingly, I subscribe to the view that the meanings of particular lexemes may be decomposed into sense components (the minimal distinctive features of meanings) to represent the structure of a lexical field in terms of various kinds of opposition.

The heterogeneous class of VSC contains verbs referring to the five senses employed in the process of human sensory cognition (i.e. sight, hearing, smell, touch and taste). The term used above (i.e. heterogeneous semantic class) will refer to a class of verbs that has been postulated arbitrarily on semantic grounds to provide the framework and data for further linguistic analysis. The task of such an analysis would consist, among other things, in the discovery of some semantically homogeneous classes of verbs within the heteregeneous class (cf. Kopytko 1983, 1986).

2. The lexicon of English contains the following VSC: *eye, feel, finger, gape, gaze, glance, glare, glimpse, handle, harken, hear, listen, look, notice, observe, palpate, peak, peep, peer, perceive, reek, ring, savor, scowl, see, smell, sound, squint, stare, stink, tongue, taste, touch, view, watch.*

To analyze the meanings of the particular classes of the VSC (in terms of sense-components) I postulated (cf. Kopytko 1983, 1986) the formulation of semantic representations in terms of parameters characteristic of human sensory cognition. A modified and expanded version of the set of parameters includes the following items:

1. SPECIFICITY of PERCEPTION characterized by the feature [± SPECIFIC]
2. RESULT /SUCCESS/ of PERCEPTION characterized by [± RESULT]
3. VOLITION of PERCEPTION characterized by [±INTENT]
4. STATE of AFFAIRS EXHIBITED by the OBJECT of PERCEPTION characterized by [±STATE]
5. ATTITUDE of PERCEIVER to the OBJECT of PERCEPTION characterized by the feature [±NEGATIVE]
6. MANNER of PERCEPTION characterized by the following features:
   (a) [± DIRECT]
   (b) [± INTENSIVE]
   (c) [± FURTIVE]
   (d) [± ACTIVE]
7. DURATION of PERCEPTION characterized by [± MOMENTARY]

The set of semantic features characterizing human sensory cognition in (1-7) above seems to be universal, i.e. it may be applied to the analysis of a number of languages. However, it is, by no means, an exhaustive set. It is possible, if the need should arise, to modify and expand it. Nonetheless, the set of features in (1-7) seems to be sufficient to characterize the semantic structure of VSC in Polish and English.

The three sense-components [± ACTIVE], [± RESULT] and [± INTENT] account for the differences in meaning between the following sentences:

(8) I *saw* a house vs. I *looked at* a house.

The use of the verb *see* in the first sentence implies that the non-component [-INTENT] by an [-ACTIVE] act of perception was cognitively successful by producing a result (represented by [+ RESULT]) i.e. a perception or image of the object of perception in the mind of the "speaker-perceiver". In the case the second sentence the result of the act of perception is irrelevant. It is the intention on the part of the perceiver that comes to the focus. To account for the meaning of verbs like *smell* in the sentence: *The flowers smell nice* (which may by paraphrased as X SENSES (Y BEZ) (cf. Kopytko 1983)) the feature [± STATE] has to be introduced into the SR of *smell*. This feature refers to the state of affairs exhibited by the object of perception, i.e. the object of perception requires perception verb complements (PVC's) to states not to activities. The feature [± STATE] has to be represented in the SRs of VSC (marked negatively) to account on semantic grounds for the ungrammaticality of the following sentences:

(9) (a) I saw her was pretty
    (b) He looked at Mary smells nice

(c) She looked at John is tall
(d) The flowers see nice to me
(e) The soup sees good to me, etc.

As a result of my analysis I arrived at three major subclasses of the VSC:
(A) RESULTATIVE – VSC
(B) INTENTIONAL – VSC
(C) EXISTENTIAL – VSC
analyzed as follows:

(10) (a) RVSC
(b) IVSC
(c) EVSC

$$\begin{bmatrix} \text{X SENSES Y} \\ +\ \text{RESULT} \\ -\ \text{INTENT} \\ -\ \text{ACTIVE} \\ -\ \text{STATE} \\ \ldots\ldots\ldots \end{bmatrix} \quad \begin{bmatrix} \text{X SENSES Y} \\ -\ \text{RESULT} \\ +\ \text{INTENT} \\ +\ \text{ACTIVE} \\ -\ \text{STATE} \\ \ldots\ldots\ldots \end{bmatrix} \quad \begin{bmatrix} \text{X SENSES Y} \\ +\ \text{RESULT} \\ -\ \text{INTENT} \\ -\ \text{ACTIVE} \\ +\ \text{STATE} \\ \ldots\ldots\ldots \end{bmatrix}$$

(for verbs *see*, *look* and *smell* respectively).
The paraphrase /X SENSES Y/ stands for a general SR for the lexical field of sensory cognition. The predicate *sense* is a composite one and may be analyzed as follows:

SENSE ⟶ PERCEIVE BY A HUMAN SENSE

In other words the perceiver uses one of his senses in the process (or act) of sensory cognition.

The three subclasses of VSC in (10) contain, respectively, the following lexical items:

RUSC: *Feel*$_R$, *Glimpse*$_R$, *Hear*$_R$, *Notice*$_R$, *Observe*$_R$, *Perceive*$_R$, *See*$_R$, *Smell*$_R$, *Taste*$_R$.
(the subscript R stands for *Resultative*).

IVSC: *Eye*$_I$, *Feel*$_I$, *Finger*$_I$, *Gape*$_I$, *Gaze*$_I$, *Glance*$_I$, *Glare*$_I$, *Handle*$_I$, *Harken*$_I$, *Hear*$_I$, *Listen*$_I$, *Look*$_I$, *Notice*$_I$, *Observe*$_I$, *Peek*$_I$, *Peep*$_I$, *Peer*$_I$, *Palpate*$_I$, *Savor*$_I$, *Scowl*$_I$, *See*$_I$, *Smell*$_I$, *Squint*$_I$, *Stare*$_I$, *Tongue*$_I$, *Taste*$_I$, *Touch*$_I$, *View*$_I$, and *Watch*$_I$.
(the subscript I stands for *Intentional* and the subscript E for Existential (below)).

EVSC: *Feel*$_E$, *Look*$_E$, *Reek*$_E$, *Ring*$_E$, *Smell*$_E$, *Sound*$_E$, *Taste*$_E$.

The VSC analyzed in terms of the five human senses to which they refer, i.e. sight, hearing, feeling, smell and touch will yield the following subclasses of verbs:

(11) (a) Resultative Verbs of Seeing – (RVS)
(b) Intentional Verbs of Seeing – (IVS)
(c) Existential Verbs of Seeing – (EVS).

The subclasses of verbs in (11) contain, respectively, the following lexical items:

(12) RVS: *Glimpse*$_R$, *Notice*$_R$, *Observe*$_R$, *Perceive*$_R$, *See*$_R$.
IVS: *Eye*$_I$, *Gape*$_I$, *Gaze*$_I$, *Glance*$_I$, *Glare*$_I$, *Look*$_I$, *Notice*$_I$, *Observe*$_I$, *Peak*$_I$, *Peep*$_I$, *Peer*$_I$, *Scowl*$_I$, *See*$_I$, *Squint*$_I$, *Stare*$_I$, *View*$_I$, and *Watch*$_I$.
EVS: *Look*$_E$.

The sentences illustrating the use of the lexical items in (12) and their Polish equivalents shall be presented below:

(14) Resultative sentences:
(A) (a) I *noticed*$_R$ a surprising change in their behavior.
(b) *Zauważyłem*$_R$ zaskakującą zmianę w ich zachowaniu.
(B) (a) I have never *observed*$_R$ him do otherwise.
(b) Nigdy nie *widzialem*$_R$, żeby postępował inaczej.
(C) (a) I at once *perceived*$_R$ him to be a gentleman.
(b) Od razu *spostrzeglem*$_R$, że był dżentelmenem.
(D) (a) I have never *seen*$_R$ her smiling.
(b) Nigdy nie *widzialem*$_R$, żeby się uśmiechała.
(E) (a) He *glimpsed*$_R$ up the narrow lanes as the train rushed through the village.
(b) Gdy pociąg pędził przez wioskę spostrzegł wąskie wiejskie drogi.

(15) Intentional sentences:
(A) (a) He liked *eying*$_I$ pretty girls dancing in the show.
(b) Lubił *patrzeć*$_I$ na ładne dziewczyny tańczące w przedstawieniu.
(B) (a) His *gaping*$_I$ at the picture made everybody laugh.
(b) Jego *gapienie się*$_I$ na obraz rozśmieszyło wszystkich.
(C) (a) They were *gazing*$_I$ at the display for quite a while.
(b) *Wpatrywali się*$_I$ w wystawę od dłuższego czasu.
(D) (a) She *glanced*$_I$ over the letter not reading it at all.
(b) *Rzucila okiem*$_I$ na list nie czytając go wcale.
(E) (a) They stood *glaring*$_I$ at each other.
(b) Stali *patrząc gniewnie*$_I$ jeden na drugiego.
(F) (a) She was fond of *looking*$_I$ at the sun-sets.
(b) Lubiła *patrzeć*$_I$ na zachody słońca.
(G) (a) *Notice*$_I$, how crazy she is being!
(b) *Popatrz*$_I$ jak ona szeleje!
(H) (a) He *observes*$_I$ precisely but says nothing.
(b) *Obserwuje*$_I$ dokładnie ale nic nie mówi.
(I) (a) I saw him *peaking*$_I$ through a keyhole.
(b) Widziałem, jak *podglądal* przez dziurkę od klucza.

(J) (a) He was *peeping*$_I$ at them from behind the curtain.
(b) *Zerkał*$_I$ na nich zza firany.
(K) (a) *Peering*$_I$ at the manuscript he would hardly read the illegible characters.
(b) *Wpatrując się*$_I$ w manuskrypt nie mógł odczytać nieczytelnych liter.
(L) (a) The accused *scowled*$_I$ at the witness.
(b) Oskarżony *spojrzał spode łba*$_I$ na świadka.
(M) (a) *See*$_I$ here they come!
(b) *Popatrz*$_I$, oto nadchodzą!
(N) (a) Hearing a knock she *squinted*$_I$ at the door.
(b) Słysząc pukanie, *wlepiła wzrok*$_I$ w drzwi.
(O) (a) They *stared*$_I$ at the scuffle thoughtlessly.
(b) Bezmyślnie *gapili się*$_I$ na bójkę.
(P) (a) The general *viewed*$_I$ the battle from a safe distance.
(b) Generał *patrzył*$_I$ na bitwę z bezpiecznej odległości.
(O) (a) They *watched*$_I$ TV all day long.
(b) Cały dzień *oglądali*$_I$ telewizję.

(16) Existential sentences:
(A) (a) After finishing the work they *looked*$_E$ tried.
(b) Po skończeniu pracy *wyglądali*$_E$ na zmęczonych.

As was the case with the verbs of seeing (cf. (11) above) the verbs of hearing fall into three classes:

(17) (a) Resultative Verbs of Hearing – (RVH)
(b) Intentional Verbs of Hearing – (IVH)
(c) Existential Verbs of Hearing – (EVH)

The subclass of verbs of hearing contains the following lexical items:

(19) RVH: *Hear*$_R$
IVH: *Harken*$_I$, *Hear*$_I$, *Listen*$_I$
EVS: *Ring*$_E$, *Sound*$_E$

(20) Resultative sentences:
(A) (a) Have you *heard*$_R$ the news on the radio?
(b) Czy *słyszałeś*$_R$ wiadomości w radiu?

(21) Intentional sentences:
(A) (a) They *harkened*$_I$ attentively to his tale.
(b) Uważnie *przysłuchiwali się*$_I$ jego opowieści.
(B) (a) You would better *hear*$_I$ what they have to say.
(b) Lepiej *posłuchaj*$_I$ co oni mają do powiedzenia.
(C) (a) I *listened*$_I$ attentively but heard nothing.
(b) *Słuchałem*$_I$ uważnie ale nie usłyszałem niczego.

(22) Existential sentences:
(A) (a) His words *rang*$_E$ false.
(b) Jego słowa *zabrzmialy*$_E$ fałszywie.
(B) (a) It *sounds*$_E$ true.
(b) To *brzmi*$_E$ prawdziwie.

The three subclasses of the verb of feeling i.e.:

(23) (a) Resultative Verbs of Feeling – (RVF)
(b) Intentional Verb of Feeling – (IVF)
(c) Existential Verbs of Feeling – (EVF)

contain the following lexical items:

(24) RVF: *Feel*$_R$
IVF: *Feel*$_I$, *Finger*$_I$, *Handle*$_I$, *Palpate*$_I$, *Tongue*$_I$, *Touch*$_I$
EVF: *Feel*$_E$

(25) Resultative sentences:
(A) (a) She *felt*$_R$ something tickle her ear.
(b) Poczuła, jak coś *polaskotalo*$_R$ ją w ucho.

(26) Intentional sentences:
(A) (a) The doctor was *feeling*$_I$ his pulse.
(b) Doktor *macal*$_I$ jego puls.
(B) (a) He *fingered*$_I$ the cloth softly.
(b) Delikatnie *pomacal*$_I$ materiał.
(C) (a) Wash your hands before you *handle*$_I$ the books.
(b) Umyj ręce, zanim będziesz *dotykal*$_I$ książek.
(D) (a) The doctor *palpated*$_I$ the sick.
(b) Doktor *obmacywal*$_I$ chorego.
(E) (a) He *tongued*$_I$ a sore tooth.
(b) *Dotykał językiem*$_I$ obolały ząb.
(F) (a) Do not *touch*$_I$ me!
(b) Nie *dotykaj*$_I$ mnie!

(27) Existential sentences:
(A) (a) Your hands *feel*$_E$ cold.
(b) *Czuję*$_E$, że twoje ręce są zimne.

The three subclasses of the verbs of smelling i.e.:

(28) (a) Resultative Verbs of Smelling – (RVSm)
(b) Intentional Verbs of Smelling – (IVSm)
(c) Existential Verbs of Smelling – (EVSm)

contain the following lexical items:

(29) RVSm: *Smell*$_R$
IVSm: *Smell*$_I$, *Stink*$_I$
EVSm: *Smell*$_E$, *Reek*$_E$, *Stink*$_E$

(30) Resultative sentences:
(A) (a) I can *smell*$_R$ something burning.
(b) Czuję, jak coś się przypala.
(31) Intentional sentences:
(A) (a) The dog was *smelling*$_I$ the tree.
(b) Pies *obwąchiwal*$_I$ drzewo.
(B) (a) He *stunk up*$_I$ the room with his pipe.
(b) Swoim oddechem *zasmrodzil*$_I$ pokój.
(32) Existential sentences:
(A) (a) He often *reeked*$_E$ of alcohol.
(b) Często *śmierdziało*$_E$ od niego alkoholem.
(B) (a) The flowers *smell*$_E$ nice.
(b) Te kwiaty ładnie *pachną*$_E$.
(C) (a) That fish *stinks*$_E$ /*smells*$_E$/.
(b) Ta ryba *śmierdzi*$_E$.

The subclass of the verbs of tasting in (33)

(33) Resultative Verbs of Tasting – (RVT)
Intentional Verbs of Tasting – (IVT)
Existential Verbs of Tasting – (EVT)

contain the following lexical items:

(34) RVT: *Taste*$_R$
IVT: *Savor*$_I$, *Taste*$_I$
EVT: *Taste*$_E$
(35) Resultative sentences:
(A) (a) Can you *taste*$_R$ anything strange in this soup?
(b) Czy *czujesz*$_R$ coś dziwnego w tej zupie?
(36) Intentional sentences:
(A) (a) I would like to *savor*$_I$ the French wine first.
(b) Najpierw chciałbym *posmakować*$_I$ francuskiego wina.
(B) (a) Ask her to *taste*$_I$ the soup.
(b) Poproś ją, aby *posmakowala*$_I$ zupę.
(37) Existential sentences:
(A) (a) The soup *tastes*$_E$ bitter.
(b) Zupa *smakuje*$_E$ gorzko.

So far I have analyzed the VSC in terms of four parameters characteristic of human sensory cognition, i.e. Result of Perception – [± RESULT]. Volition of Perception [± INTENT]. State of Affairs Exhibited by the Object of Perception – [± STATE] and Manner of Perception [± ACTIVE].

Now I shall proceed with the analysis of the lexical field of VSC in terms of other parameters specified in (1-7) above i.e. Specificity of Perception [± SPECIFIC]. Attitude of Perceiver to the Object of Perception – [± NEGATIVE]. Manner of Perception – [± DIRECT], [± INTENSIVE], [± FURTIVE] and Duration of Perception – [± MOMENTARY].

The parameter of Specificity of Perception indicates the difference between a specific act of perception and a general ability of perceiving exemplified in (38):

(38) (A) (a) She could *see* when he did it: not until later did she lose her sight.

(b) *Widziala* $\left\{\begin{matrix}\text{gdy}\\ \text{jak}\end{matrix}\right\}$ on to zrobił dopiero później straciła wzrok.

(B) (a) I *heard* well before the accident.

(b) *Slyszalem* dobrze przed wypadkiem.

(C) (a) I could *smell*, *taste* and *feel* better when I was younger.

(b) Miałem lepszy węch, smak i czucie gdy byłem młodszy.

The VSC in (38) have to be marked as [– SPECIFIC] because they refer to a general ability rather than to a specific act of perception. It seems that only *feel*, *see*, *hear*, *taste* and *smell* can be marked for that feature. As can be seen in Polish only *hear* and *see* have verbal equivalents. The verbs *feel*, *smell* and *taste* require substantives as translational equivalents.

The parameter of Manner of Perception – [± DIRECT] indicates the difference between a direct and indirect perception. In the case of indirect perception the acquisition of a mental state (knowledge) is not direct (i.e. acquired by an act of perception) but inferred by means of indirect evidence as in the sentences below:

(39) (A) (a) I *see* that you are in trouble.

(b) *Widzę*, że jesteś w kłopotach.

(B) (a) I *heard* that she sang worse than ever before.

(b) *Slyszalem*, że śpiewała gorzej niż kiedykolwiek.

(C) (a) I could *feel* that she was standing near me.

(b) *Czulem*, że stała blisko mnie.

The VSC in (39) expressing indirect perception have to be marked as [– DIRECT]. It seems that only *see*, *hear*, and *feel* require that kind of specification.

A group of verbs including: *Glare*, *Reek*, *Scowl*, *Smell* and *Stink* require a specification in terms of Attitude of Perceiver to the Object of Perception – [± NEGATIVE] as follows:

(40) (a) *Glare*: IVS – [+ NEGATIVE] (cf. (15) (E) above)
(b) *Reek*: EVS – [+ NEGATIVE] cf. (32) (A)
(c) *Scowl*: IVS – [+ NEGATIVE] cf. (15) (M)
(d) *Smell*: EVSm – [+ NEGATIVE] cf. (32) (C)
(e) *Stink*: EVSm – [+ NEGATIVE] cf. (32) (C)

The verbs *peak* and *peep* are marked for the furtive manner of perception as [+ Furtive] as in (41):

(41) (a) *Peak*: IVS – [+ FURTIVE] cf. (15) (J)
(b) *Peep*: IVS – [+ FURTIVE] cf. (15) (K)

There is a group of verbs including: *gape*, *gaze*, *stare*. *peer* and *squint*, that requires specification of the intensity of perception – [± INTENSIVE] as follows:

(42) (a) *Gape*: IVS – [+ INTENSIVE] cf. (15) (B)
(b) *Gaze*: IVS – [+ INTENSIVE] cf. (15) (C)
(c) *Peer*: IVS – [+ INTENSIVE] cf. (15) (L)
(d) *Squint*: IVS – [+ INTENSIVE] cf. (15) (O)
(e) *Stare*: IVS – [+ INTENSIVE] cf. (15) (P)

Finally, a group of verbs including: *glance*, *glimpse*, *notice* and *perceive* are marked for Duration of Perception as + MOMENTARY as in (43):

(43) (a) *Glance*: IVS – [+ MOMENTARY] cf. (15) (D)
(b) *Glimpse*: RVS – [+ MOMENTARY] cf. (15) (F)
(c) *Notice*: IVS and RVS – [+ MOMENTARY] cf. (14) (A) and (14) (H)
(d) *Perceive*: RVS – [+ MOMENTARY] cf. (14) (C)

Other verbs of sensory cognition i.e. those not specified positively for the feature in (38-43) are marked negatively for the features analysed above.

Two verbs of intentional hearing *overhear*$_{I}$ and *eavesdrop*$_{I}$ seem to be marked for [± FURTIVE] as in the sentences below:

(44) (a) I overheard / eavesdropped their conversation.
(b) Podsłuchałem ich rozmowę.
IAH: *Overhear* – [+ FURTIVE]
IVG: *Eavesdrop* – [+ FURTIVE]

Overhear may be also used as a resultative verb of hearing as in (45):

(45) (a) Incidentally, I *overheard* their conversation.
(b) Przypadkowo słyszałem ich rozmowę.
RVH: *Overhear* – [– FURTIVE]

An overall view of the distribution of semantic features (including: [± SPECIFIC], [± DIRECT], [± NEGATIVE], [± INTENSIVE], [± FURTIVE], [± MOMENTARY] in the lexical field of VSC) is represented in table 1 below:

	1	2	3	4	5	6
VSC	[± DIR]	[± SPEC]	[± NEG]	[± INT]	[± MOMENT]	[± FURT]
Eavesdrop	+	+	–	–	–	+
Eye	+	+	–	–	–	–
Feel	(±)	(±)	–	–	–	–
Finger	+	+	–	–	–	–
Gape	+	+	–	+	–	–
Gaze	+	+	–	+	–	–
Glance	+	+	–	–	+	–
Glare	+	+	+	+	–	–

VSC	1 [± DIR]	2 [± SPEC]	3 [± NEG]	4 [± INT]	5 [± MOMENT]	6 [± FURT]
Glimpse	+	+	–	–	+	–
Handle	+	+	–	–	–	–
Harken	+	+	–	–	–	–
Hear	(±)	(±)	–	–	–	–
Listen	+	+	–	–	–	–
Look	+	+	–	–	–	–
Notice	+	+	–	–	+	–
Observe	+	+	–	–	–	–
Overhear	+	+	–	–	–	(±)
Palpate	+	+	–	–	–	–
Peak	+	+	–	–	–	+
Peep	+	+	–	–	–	+
Peer	+	+	–	–	–	–
Perceive	+	+	–	–	+	–
Reek	+	+	+	–	–	–
Ring	+	+	–	–	–	–
Savor	+	+	–	–	–	–
Scowl	+	+	+	–	–	–
See	(±)	(±)	–	–	–	–
Smell	+	(±)	(±)	–	–	–
Sound	+	+	–	–	–	–
Squint	+	+	–	+	–	–
Stare	+	+	–	+	–	–
Stink	+	+	+	–	–	–
Tongue	+	+	–	–	–	–
Taste	+	(±)	–	–	–	–
Touch	+	+	–	–	–	–
View	+	+	–	–	–	–
Watch	+	+	–	–	–	–

Table 1

The encircled "±" specifier (in table 1) indicates that the verb, contextually, admits of both features. In Table 2, the lexical field of VSC in English and Polish is analysed in terms of three basic semantic subcategories of VCC (i.e. RVSC, IVSC and EVSC).

[English]	RVSC	IVSC	EVSC	[Polish]	RVSC	IVSC	EVSC
Eavesdrop	–	+	–	O	–	–	–
Eye	–	+	–	O	–	–	–
Feel	+	+	+	Dotykać	–	+	–
Finger	–	+	–	O	–	–	–
Gape	–	+	–	Gapić się	–	+	–

[English]	RVSC	IVSC	EVSC	[Polish]	RVSC	IVSC	EVSC
Gaze	–	+	–	O	–	+	–
Glance	–	+	–	O	–	–	–
Glare	–	+	–	O	–	–	–
Glimpse	+	–	–	O	–	–	–
Handle	–	+	–	O	–	–	–
Harken	–	+	–	Przysłuchiwać się	–	+	–
Hear	+	+	–	Słyszeć	+	+	
Listen	–	+	–	Słuchać	–	+	–
Look	–	+	+	Patrzeć	–	+	+
Notice	+	+	–	Zauważyć	+	+	–
Observe	+	+	–	Obserwować	+	+	–
Overhear	–	+	–	Podsłuchiwać	–	+	–
Palpate	–	+	–	Obmacywać	–	+	–
Peak	–	+	–	Zerkać	–	+	–
Peep	–	+	–	Podglądać	–	+	–
Peer	–	+	–	Wpatrywać się	–	+	–
Perceive	+	–	–	Spostrzegać	+	–	–
Reek	–	–	+	Śmierdzieć	–	–	+
Ring	–	–	+	Brzmieć	–	–	+
Savor	–	+	–	Smakować	–	+	–
Scowl	–	+	–	O	–	–	–
See	+	+	–	Widzieć	+	+	–
Smell	+	+	+	Wąchać	–	+	+
Sound	–	–	+	Brzmieć	–	+	–
Squint	–	+	–	O	–	–	–
Stare	–	+	–	O	–	–	–
Stink	–	–	+	Śmierdzieć	–	–	+
Tongue	–	+	–	O	–	–	–
Taste	+	+	+	Smakować	–	+	+
Touch	–	+	–	Dotykać	–	+	–
View	–	+	–	O	–	+	–
Watch	–	+	–	Oglądać	–	+	–

Table 2

The "O" specification of some Polish VSC indicates the absence of a literal translational equivalent of the English verb (i.e. a lexical gap in the lexical field of Polish VSC). Those gaps are filled by close semantic equivalents which assume two forms: the first consists of a single verb closely related in meaning as in (46):

(46) *eavesdrop* – podglądać, *finger* – macać, *eye* – patrzeć,
gaze – gapić się, etc.

The second consists of a verb followed by an NP or a modifier as in (47):

(47) *tongue* – dotykać językiem, *scowl* – patrzeć spode łba,
glance – rzucić okiem, etc.

For other examples (cf. 14-39 above).
Another striking thing in Polish is the absence of the resultative verbs of feeling, smelling and tasting (i.e. RVF, RVSm, RVT). The same verbs are missing in Polish when they are marked as [– SPECIFIC] (cf. (38) (C) above).

The lexical field of sensory cognition in Modern English compared with ME lost the following verbs: ME – RVSC – *beholden*, MR – IVSC – *beholden*, ME – EVSC – *Savoren*, (cf. Kopytko 1986). The verbs acquired since ME (i.e. 1 ca. 1500) include the following: *eavesdrop*, *eye*, *glance*, *glimpse*, *notice*, *observe*, *peep*, *pear*, *perceive*, *squint*, *view*, *ring*, *finger*, *handle*, *reek*, *tongue*, *palpate*.

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PHONOSTYLISTICS AND SECOND LANGUAGE ACQUISITION

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1. Introduction

This paper is one in a series discussing the acquisition process of second[1] language phonology within the framework of Natural Phonology. As all others in the series,[2] the paper is based on both experimental and observational data. Its main concern centres on the acquisition of second language phonostylistic (i.e. style-dependent) processes of casual speech.

Do learners acquire the ability to speak casually in a foreign tongue? In other words, do they acquire the phonostylistic processes of foreign casual speech? If so: what is the underlying mechanism of this acquisition process?; is it universal for all learners?; what criteria decide about a mechanism employed? Answers to the above questions are sought out in the present paper.

2. Hypothesis

The model of Natural Phonology is easily applicable to the situation of an adult L2 (second language hereafter) learner. His phonological system is much reduced in comparison with that of a child, and comprises only selected processes and underlying representations together with learned rules. It is this native system that is confronted with foreign language requirements. L1 (first language hereafter) processes are subconsciously applied by the learner to L2 strings, which results in interference in L2 unless a native process happens to be identical with one selected to operate in L2. When the L1 system of the learner lacks some process operating in L2, he has to learn it, in the same way as he learns L2 rules. If the processes happen to be differently limited in the two languages, the learner has to learn the L2 constraint as a new rule.

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[1] "Second" and "foreign" are used interchangeably.

[2] Cf. the references for other papers in the series.

The L1 interference is predicted to be stronger in casual speech situations, as the phonostylistic processes of casual speech are less constrained and they are applicable to the most natural and least controlled style of speech.

This simple and straightforward model of the acquisition is, however, by no means comprehensive enough to account for the process in its whole complexity. It can be questioned on at least two grounds. Firstly, the acquisition of L2 phonology is conditioned by a multitude of socio-psychological factors whose significance is overlooked in the model. Secondly, the model predicts that L2 processes acquire the status of rules in the learner's L2 production and, consequently, do not apply in uncontrolled speech e.g. in slips of the tongue, by analogy with other rules and by contrast with processes; however, the prediction seems observationally inadequate.

The setting in which a language is acquired – formal or natural[3] – may constitute a demarcation line between two different groups of learners. It is not only the presence or lack of instruction that leads to different degrees of achievement within the two groups – this would be a decisive factor if other determinants were of equal value. The other conditioning factors, however, are usually quite discrepant and, also, play different roles in the respective settings.

The most important factors are: the attitude of the learner towards the language learned and to its speakers which is partly responsible for the learner's motivation for learning the language; the purpose of learning the language which influences his orientation; and the aptitude of the learner for learning in general and for studying languages in particular.

Motivation and orientation can be predicted to be far from similar in the two settings. Aptitude, on the other hand, plays a different role in each of them.

One may hypothesize that, depending on the value of the above factors, the learners in the two settings acquire foreign language phonology by using different mechanisms. In the case of formal setting learners the mechanism may be conscious learning of both processes and rules. On the contrary, natural setting learners may "employ" subconscious acquisition, in the child's fashion, leading to the reactivation in the learners' minds of natural phonological processes which have been passive since the time first language acquisition finished. Alternatively, the learning procedure may be homogeneous for the learners of both settings: they learn by observation and imitation (the formal setting learners are richer by instruction), while they differ largely in the level of achievement, with favourable conditions being usually on the formal setting learners' side.

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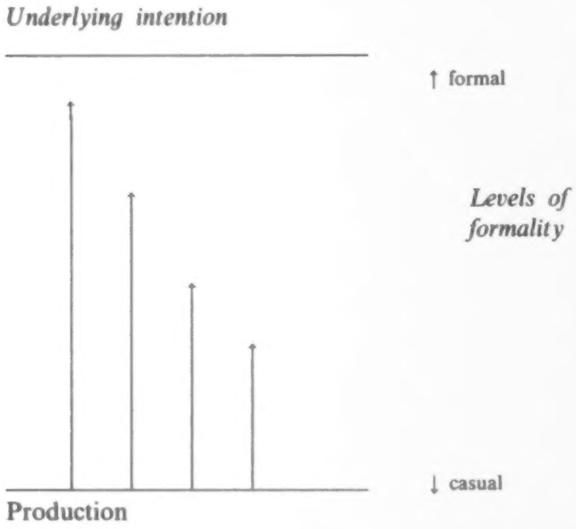
[3] By *formal setting* I mean any teacher-based training course in a second language; by *natural* – the acquisition of a second language in a second language speaking country through every day interactions with the speakers i.e. for purely communicative purposes.

The latter suggestion is favoured by the author. Both, however, have to be subjected to testing.

Irrespective of the nature of the acquisition mechanism, it is uniform for all phonological processes i.e. obligatory, optional and phonostylistic. The term *phonostylistic* is used here, after Dressler (1985), to denote style-dependent phonological processes. In the paper, only the basic style differentiation is utilised i.e. formal vs. casual. Phonostylistic variation as a phenomenon is understood as follows:



The underlying sound intention is the same irrespective of the style used by the speaker (in his native tongue); however, it is reached to varying degrees in particular styles, the biggest gap between production and intention existing in casual speech.

The learner's ultimate aim (of which he is not aware) is to "decipher" the foreign language intention level. Approaching this aim is an individual endeavour: the task may be made easier for the learner in a formal setting by supplying him with proper instruction; in a natural setting the task may be harder if the learner is exposed predominantly to casual speech effectively masking the underlying intention. In the latter case, the learner matches his foreign language perceptions to the native intention.

Besides the main acquisition mechanism, there exists at least one more way in which L2 processes find their place in the learner's foreign language speech. The learner learns frequently used lexical items containing the process outputs. This refers especially to those applications of phonostylistic processes which have become lexicalized, and, therefore, function style-independently. The lexicalizations originate mainly in casual speech.

The character of a speech situation depends, among other things, on such factors as the topic of conversation, the relationship with the interlocutor(s), the place of the conversation, personal characteristics of the speakers and the like. The situation which speakers enter most often is a casual speech one. It does not require of the speaker any special control of his linguistic performance, which makes him pay very little attention to pronunciation. The low level of attention triggers the application of the processes serving ease of articulation – casual speech lenitions.

Speed of delivery constitutes another dimension in casual speech. It usually correlates in an inversely proportional manner with attention: the higher the attention level the lower the speed. This, however, is not a constant. In casual speech, when there is little attention paid to the way of speaking, speed might well stay low. Consequently, speed is a factor involved in a one-way implication: high speed implies the application of certain assimilatory processes contingent upon the inertia of articulators, but not the opposite: the application of these processes does not imply that the utterances in which they occur have been produced with high speed.

There are instances in the literature of maintaining the distinction between fast and casual speech processes or rate – and register-sensitive ones (cf. Hasegawa (1979), Kaisse (1985) or Kerswill and Wright (1987)) as well as of approaching speed and casualness inseparably (cf. Dressler (1985), Shockey (1987) or Ramsaran (1978)). The former position is untenable unless the role of speed is uderstood in the sense described above. Although from a physiological point of view, theoretically, high speed of delivery does favour the application of some processes (articulators cannot "make it"), still this kind of exclusively physiological conditioning does not belong to speech reality. As Shockey puts it: "human beings probably do not ... ever speak so fast that it's impossible for them to realize all the phonetic distinctions which would be present in a slow version" (Shockey 1987:223).

Coming back to attention, it varies both paradigmatically and syntagmatically. Paradigmatically, the level of attention decides the style of speech e.g. high level of attention renders the style formal. Syntagmatically, within a given style attention may drop or increase e.g. for a time span of one word. Thus, for instance, in a casual style (overall attention low) it may be drawn to an informationally loaded word; or, in a formal style (attention high) it may decrease for a frequently used word, which ultimately leads to lexicalization of this particular item.

All that has been said about casual speech processes refers to native speech. A major problem with the acquisition of those processes by the second language learner consists in the fact that the level of attention in foreign speech does not drop low enough for the processes to apply in a natural way. They are learned and, if at all, applied, semi-consciously or in a semi-controlled manner.

3. Experiment

The purpose of an experiment was to examine the learners' use of a subgroup of phonostylistic processes of English – casual speech processes. The subjects were asked to read a short dialogue (Appendix 2) – in pairs, and a set of 21 short phrases (Appendix 1) – individually, with the following instructions in mind: to read the dialogue quickly and in the most casual way possible (they were allowed to read it silently beforehand) and to read the phrases as quickly as possible (each of them three times).

The reading sessions took place in a anechoic chamber in order to obtain good quality recordings.

There exist, however, certain unavoidable drawbacks connected with the collection of casual speech data. Casual speech situations are those in which an experimenter is an intruder. Moreover, they can hardly be arranged in an anechoic room.[4] Still a further difficultly is connected with obtaining *non-native* casual speech data.

Acknowledging these drawbacks should not prevent one from investigating casual speech. In the present experiment it was assumed that: identical conditions of the recordings for all subjects rendered the results for particular speakers and processes comparable, and that tendencies noticeable for the sample, especially if matched by observational data did bear significance with respect to testing the hypothesis on the acquisition of foreign language phonostylistics (cf. also Preisler 1986:46ff)

As for the subjects in the experiment, among 33 of them, 22 were Polish – all of them students of English in their first year. The remaining group consisted of speakers of different nationalites (and, thus, native languages) i.e. Austrian, Spanish, Chinese, Japanese and Korean. The subjects were diversified in order to find out about possible universal traits in the second language acquisition procedure. 3 native speakers of English, performing the same task in identical circumstances, served as a control group.

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[4] There have been attempts at obtaining real casual speech in these circumstances e.g. leaving subjects unexpectedly in an anechoic chamber under the pretext of forgetting the materials to be read by them, and recording their conversation meanwhile; or sitting with subjects in the chamber, trying to involve them in a lively conversation on some catchy topic. These, however, may very easily fail: one might wait long to get a stretch of connected speech in the former case, and in the latter – subjects might resist indulging themselves in a natural conversation in the claustrophobic atmosphere of an anechoic room.

The recordings were analyzed auditorily by the author and one phonetically trained control listener.

4. Results

When listening to the recordings an immediate observation was that although all subjects were given the same instruction *to speak as quickly as possible*, the tempo of some was almost slow. Below, the range of values in syllables per second for the rate of speech of 26 of the subjects is presented – based on two stretches of text selected from the dialogue:

6.5
6.3.
5.8
5.6
5.3
4.9 (two subjects)
4.7 (six subjects)
4.4
4.3 (two subjects)
4.2
4.0
3.8 (four subjects)
3.6
2.6
1.7

Thus, "the rapidity of rapid speech" varied from speaker to speaker. This, however, did not impede casualness: phonostylistic processes of casual speech did apply irrespective of speed. For instance:

	A	B
I've met Peter at the station.	+	–
Has your letter come?	+	–
Tell me what you want.	+	+

where rate of speech for A and B is the same (8 sylls/sec)

As for the native speakers of English, the only phonostylistic processes all three of them applied (apart from a style-independent sandhi process of linking r) were the following: nasal assimilation in *triumph* and palatalization ("Yod coalescence") in *Tell me what you want*. In 13 other contexts phonostylistic processes did apply in the readings by two or only one speaker (they could have applied in 26 contexts).

The main body of data concerns non-native subjects. The results are organized in the following manner: percentages of speakers are presented whose speech displayed a phonostylistic process in a given context.[5]

A. dialogue.

A maximum number of potential occurrences of a process in a given phrase throughout all readings was 17. Out of 18 potential contexts in the dialogue, 11 below were affected.

Context	Process	Percentage of occurrences
triumph	nasal assimilation	94.1
[−ɱf]		
(inquire about)	linking r	70.6
(power assisted)	„	47.1
couldn't you	Yod coalescence	35.3
[−t/ʃ (j)u]		
exact colour	stop deletion	23.5
[−k˺ k−]		
a test drive	„	16.7
[−s d−]		
dont buy	stop deletion	
[m(p) b−]	nasal assimilation	11.8

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[5] For the purposes of a present discussion, major discrepancies between Polish and English phonostylistic processes concerned need to be mentioned.

While English demonstrates noncontinuant assimilation and, possibly, stop deletion in e.g. *Don't be late!*, Polish has only a process of a voiceless stop becoming a voiceless nasal in a homorganic cluster: nasal+stop+nasal word internally.

English is richer from Polish by a plosive assimilation (strident and nasal assimilation being also Polish).

English palatalization before [j] introduces a change by a segment (or in two features: [high] and [anterior] – cf. Rubach (1974)), while a Polish process results in a single feature change (e.g. [t]→[tj]).

Nasality is much more complex in Polish than in English, mainly due to the existence of nasal gliding and vowel nasalization processes which strongly interfere in the learner's English.

For a detailed description of both English and Polish phonostylistic processes of casual speech refer e.g. to: Rubach (1974), (1977) and (1980), and for Polish: Madelska (1987). Polish phonostylistic interference in English is treated also in Dziubalska (1983).

Context	Process	Percentage of occurrences
in case you [−ʒ j−]	palatalization	11.8
a fixed price [−ks p−]	stop deletion	11.8
ten pounds [−m p−]	nasal assimilation	5.9
goodbye [−b˺ b−]	stop assimilation	5.9

Phrases.

Percentages were counted from the overall number of speakers i.e. 33. In 14 phrases out of 20 the application of one or two processes was perceived.

Phrase	Process	Percentage of speakers
Tell me what you want [−tʃ (j)u]	Yod coalescence	48.5
You mustn't over-eat. [−n̩ əu−] [−r−]	t-deletion/linking r	45.5/33.3
cap and gown [−ŋ g−]	stop deletion non-cont. assimilation	36.4
a kind gift [−ŋ g−]	„	27.3
has your letter come [−ʒ j−]	palatalization	21.2
What's your weight? [−tʃ j−]	„	15.2
St. Paul's Cathedral [s m̩ŋ p−]	stop deletion vowel elision nasal assimilation	12.2
I can't go [−ŋ(k) g−−]	stop deletion non-cont. assimilation	12.2
He won't buy it. [−m(p) b−]	„	12.2
Don't be late. [−m(p) b−]	„	12.2
Don't miss your train. [−m(p) m−][−ʃ j−]	stop deletion non-cont. assimilation/palatal.	12.2/6.1

Phrase	Process	Percentage of speakers
He kept quiet. [−p˺ k−] [−k˺ k−]	stop deletion and/or assimilation	3
cup and saucer [−p ɱ]	non-cont. assimilation	3
I've met Peter at the station. [−p˺ p−][−r−]	stop assimilation/linking r	0/3

Even though rapidity was imposed on the speakers, still their speaking rate remained idiosyncratic. This, however, did not influence the application of phonostylistic processes in either way: the rate of speech alone is not a sufficient condition for casual speech processes to occur.

Native speakers generally applied fewer processes than foreigners. This suggests that, unsurprisingly, they did not find the experimental situation casual enough to trigger a full range of phonostylistic processes of casual speech (cf. levels of formality). Neither did speed have any impact: they spoke quickly but attentively (cf. an attention approach). The consistent occurrence of nasal assimilation in *triumph* and of palatalization in *Tell me what you want* can be accounted for.

The former is conditioned articulatorily (purely phonetically motivated): the vicinity of [m] and [f] in place of articulation makes the nasal assimilate to the following labiodental; moreover, the articulatory configuration of full oral opening for a vowel + complete oral closure and velic opening for a nasal + a narrow oral opening for a fricative is a difficult sequence not only for an English speaker (e.g. Poles share the difficulty) – it requires a concentrated effort on the part of the speaker to produce a clear bilabial nasal with a labiodental fricative next to it. (BASE of articulation?)

The latter is best explained as a case of lexicalization of phonostylistic palatization in a commonly and frequently used phrase.[6]

Native speaker's data also demonstrated an idiosyncratic use of phonostylistic processes. This is confirmed by the author's observations, and points to a complex conditioning involved in the application of these processes, going

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[6] *Observations.*

The most interesting outcome of the observations of live English speech concerns two processes: phonostylistic palatalization and intrusive r.

Phonostylistic palatalization has undergone lexicalization before you, *your* and *year* (this may prove they are clitics) – it is commonly used style-independently, also on TV and radio, even by BBC News-announcers or by priests in church sermons. However, the process is still fully productive in the context of other lexical items beginning with Yod e.g. *It's early day[ʒ] yet;*

beyond pure phonetic criteria e.g. a process may be positively or negatively socially marked for a given speaker.

The lack of consistency in the application of phonostylistic processes by the foreign subjects suggests that, firstly, they learned those items which have been lexicalized in English with a process present or which, at least, have been heard by the subjects most often e.g. *Tell me what you want*; *couldn't you*.

Secondly, even if they have managed to consciously learn some of those processes, they have not achieved the ability to apply them in all relevant environments e.g.

I can't go [ai kʰaːŋ(k) gəʊ]
vs.
He won't buy it [hi wəʊnt bai it]

The phonetic motivation of labiodental assimilation (cf. *triumph*) seems universal and, therefore, the process was applied by the learners in the relevant English strings.

Individual foreigners demonstrated more phonostylistic casual speech processes in their readings than the native speakers. This proves the lack of precise style differentiation in the learner's speech: its phonological characteristics remain to a large extent constant – the learner puts into practice whatever he has learned no matter the circumstances.

Speakers of six different nationalities revealed similar tendencies with reference to the acquisition of second language phonostylistic processes of casual speech. One may infer, then, that the phonetic motivation of those processes is universally strong and that the non-phonetic i.e. mainly normative and performance factors influencing their application act in a parallel fashion in language and, consequently, introduce analogous difficulties into the acquisition process of a foreign language.

Sovie[tʃ] Union; *Larges[tʃ] union*; *like tha[tʃ], yes.* (Kaisse's (1987:37) examples of unacceptable contexts for palatalization are observationally inadequate).

Intrusive r has acquired an interesting social status in England nowadays. It is seen as "posh" by educated people (e.g. solicitors, bank managers), but at the same time persecuted by prescriptivists as vulgar. The latter cannot, however, stop its creeping into quite formal styles licensed e.g. by the BBC where announcers use it more and more often e.g. *Neil Kinnock's dilemma* [r] *is...* or *President Botha* [r] *of South Africa* and even lawyers say the *law* [r] *is* or *law* [r] *and order*. The latter, incidentally, seems to be one of the first candidates for lexicalization, together with *the idea* [r] *of.*

Uneducated classes would rather avoid intrusive r to isolate themselves from everything "posh" on one hand, and to obey prescriptivists on the other.

APPENDIX 1

1) Put pen to paper
2) I've met Peter at the station.
3) Has your letter come?
4) Tell me what you want.
5) I can't go.
6) St. Paul's Cathedral
7) bread and butter
8) a kind gift
9) Don't be late!
10) Mrs. Young
11) What's your weight?
12) Don't miss your train.
13) My china is broken.
14) Good morning.
15) You can have mine.
16) He kept quiet.
17) law and order
18) He won't buy it.
19) You mustn't over-eat.
20) cup and saucer
21) cap and gown
22) I've given up.

APPENDIX 2

A. Good morning. I'd like to inquire about the Triumph you've advertized in today's *Standard*.
B. Yes, we have the car here...
A. Is the information given about the car valid?
B. Yes, certainly. It is equipped with auto-transmission and power-assisted steering, which, I suppose, is the most important piece of information for you, and...
A. Well, obviously, but... is it really ice blue with darker blue inside?
B. Oh... yes, I can assure you that this is the exact colour of the car.
A. All right, then. Can I arrange a test drive for, let's say, tomorrow?
B. Y..es, you can have it tomorrow..at...6 p.m.. It'll cost you £10 in case you don't buy the car.
A. Ten pounds!! Couldn't you make it five?
B. Sorry, madam, we have a fixed price for all customers.
A. Well... al right. I'll be there tomorrow. Goodbye.
B. Goodbye.

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A CONTRASTIVE ANALYSIS OF OBJECT-CONTROL IN ENGLISH AND GERMAN*

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1. Introduction

In recent work in generative linguistic theory the terms "control" and "controller" have been used to refer to the "process of determining the co-referentiality of certain types of element in the deep structure of a sentence" (Crystal 1985:74). However, it is not my primary concern in the present paper to contribute to the description of control phenomena within the framework of Government-and-Binding Theory. In what follows, the term "control verb" is merely used as an informal label for a class of matrix verbs embedding infinitival clauses which have no overt subject but whose "implied" or "understood" subject is identical to a specifiable constituent of the matrix clause. The main emphasis will be on "object-control" of the kind illustrated by the following English and German examples:

(1) I asked him to work faster.
(2) I appealed to him to work faster.
(3) Ich bat ihn, schneller zu arbeiten.
(4) Ich riet ihm, schneller zu arbeiten.
(5) Ich redete auf ihn ein, schneller zu arbeiten.

In all these cases the object of the matrix clause (common case[1] or prepositional in English; accusative, dative or prepositional in German) is the understood subject of the infinitival clause ("I asked **him** demanding that **he** should work faster," etc.). In English, there is superficial similarity, and some overlap, between control-verb structures such as (1) and (2) and 'raising'[2]-structures such as:

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[1] I use the term "common case" because the literature differs as to whether the English object is a direct or indirect one in such cases: cf. Huddleston (1984:219) and Chomsky (1981:96) vs. Quirk et al. (1985:96).

(6) I believe her to be a very intelligent person.
(7) Both countries want the fighting to end.

The verb *allow* for example, appears both in "monotransitive" raising-constructions and in "ditransitive" control-constructions, with the linguistic and situational context determining the appropriate structural interpretation in a given utterance:

(8) She wouldn't allow me to speak.
(9) How could you allow such a thing to happen?
(10) We can't allow Smith to get away with such a remark.

Example (8), with its animate object and an infinitive denoting a voluntarily performed action, is semantically trivalent: A participant A allows another participant B to perform an action C. Syntactically, (8) is a control construction because the infinitival clause does not have an overt subject. An analogous interpretation is unlikely for (9). Here, *allow* merely denotes non-prevention in a semantically bivalent predication: A participant A does not prevent a state of affairs B. Although the noun phrase "such a thing" could be considered an object of the verb **allow** in purely structural terms, it is clear that, semantically, the entire embedded predication "such a thing to happen" functions as an object clause. One way of accounting for the ambiguous status of "such a thing" is to regard it as the overt subject of the infinitive "raised" to the rank of object in the matrix. Barring further clues from a wider context, example (10) is indeterminate between the two readings exemplified in (8) and (9).

However, such occasional cases of structural overlap should not disguise the fact that it is normally very easy to distinguish between raising- and control-constructions by means of a variety of syntactic tests.[3] Owing to the extreme marginality of raising with *zu*-infinitives[4] related problems do not arise in German.

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[2] I use the term "raising" as a well-known informal characterization of these structures. By adopting it I do not intend to commit myself to particular formalizations of raising-rules within the generative framework.

[3] In raising-structures all semantic ties between the matrix verb and its apparent object have been severed, which means that even existential *there* or empty *it* may appear in "object"-position (cf. "I want there to be more agreement on this point." vs. "*I ask there to be more agreement on this point."). In raising-structures active/passive-pairs such as "I want the doctor to see you." /"I want you to be seen by the doctor." are semantically equivalent, whereas there is no such equivalence in structurally analogous control-constructions (cf. "I asked the doctor to see you." vs. "I asked you to be seen by the doctor "

[4] Cf. the near total absence of attested examples since the 18th century in Behaghel (1924:328-29).

Previous contrastive and confrontational treatments of English and German control verbs (Goergens 1973, Hellinger 1977, Thiem 1980) have tended to focus on structural similarities between the two languages, regarding points of structural difference as minor irregularities against a shared background. I will argue that this picture is deceptive because it is based on very small samples of English and German control verbs and that the broadening of the data-base of the contrastive analysis reveals several systematic cross-linguistic contrasts which have gone unnoticed so far.

2. *Object-control in English and German*

An investigation of a corpus of 840 000 words of spoken and written British English I recently conducted at the Survey of English Usage (University College London) yielded the following English object-control verbs. (The rationale for the division into semantic classes will become obvious in the course of the discussion):

TABLE 1: Object-control verbs in the SEU-corpus, arranged in semantic classes

Suasive verbs of communication: (type/token-ratio 32:335, active/passive-ratio 264:71)
ADVISE, appeal to, *approach*, ASK, ask down, ask over, beg, bother, bribe, brief, call, CALL (UP)ON, challenge, charge, convince, ENCOURAGE, forbid, incite, *inform*, instruct, INVITE, motion, PERSUADE, recommend, remind, REQUEST, *speak to*, telegraph to, TELL, urge, warn, write to,

Three-place causative predicates: (type/token-ratio 21:107, active/passive-ratio 52:55)
arrange with, bind, bring, compel, condition, constrain, doom, FORCE, incline, induce, inspire, LEAD, lead on, move, oblige, pay, possess, press, prompt, *show*, TEMPT,

Three-place "enabling" predicates: (type/token-ratio 9:63, active/passive-ratio 38:25)
authorize, *back up*, empower, entitle, HELP, LEAVE, *strengthen*, TEACH, train,

Verbs of designing, planning and using: (type/token-ratio 14:35, active/passive-ratio 11:24)
adapt, *arrange*, build, calculate, construct, convert, design, divert, equip, fit, modify, prepare, schedule, use,

Verbs of choice: (type/token-ratio 10:16, active/passive-ratio 7:9)
appoint, choose, depute, employ, engage, enlist, enroll, groom up, hire, invoke,

Verbs of sending/taking: (type/token-ratio 9:30, active/passive-ratio 21:9)
bring down, call in, detail, dispatch, SEND, ship off, show in, take, put out,

Other: (type/token-ratio 4:6, active/passive-ratio 5:1)
depend on, rely on, *sponge on*, trust,

NOTE: No matrix verb has been assigned to more than one class although in some cases multiple class membership would clearly have been justified. The lists do not contain the items *allow, enable, get, have, order, permit*, and *require* because with these verbs it is often not clear whether one is dealing with raising- or control-constructions. All control-uses of the verbs in question could, however, easily be accommodated in the above framework.

Those matrix verbs which appear in control-constructions of the type under investigation more than ten times are given in CAPITALS. Verbs whose control-verb use is considered a syntactic "nonce-formation" are given in *italics*.

A comparison of Table 1 with the results of other corpus-based studies of infinitival complementation in English (e.g. van Ek 1966, Andersson 1985) shows that the list of verbs, while by no means exhaustive, can be considereda representative sample. A comparably rich data-base for the study of object-control in German infinitival complement clauses is provided by Bech (1955 and 1957), who investigates a corpus of written German, and Siebert-Ott (1983).

A comparison of the English and German material immediately reveals two kinds of linguistic contrasts:

a) specific stylistic, syntactic or idiomatic contrasts between a given English verb and its lexical equivalent(s) in German (or *vice versa);*

b) generalized and systematic contrasts which hold for large numbers of verbs.

As is to be expected, crosslinguistic contrasts of the former kind are extremely numerous and diverse, and a brief discussion of two illustrative examples will have to suffice here.

Both English *bring* and German *bringen* can take infinitival complement clauses when they are used as causative predicates. In modern English, however, this causative use of *bring* is largely restricted to cases in which the object of the verb is a reflexive pronoun or the verb itself is in the passive:[5]

(11) I couldn't bring myself to admit that I'd made a mistake.
(12) She couldn't be brought to admit that she'd made a mistake.

All the active uses of causative **bring** which I collected in the Survey corpus are with reflexive objects, and in Andersson's (1985:88) count the proportion of reflexive objects is ninety per cent. In an elicitation experiment conducted to complement the analysis of the Survey corpus I was able to show that in cases in which the object is not reflexive speakers strongly prefer passive matrix verbs (i.e. structures of the kind illustrated in example (12) above).[6] No comparable constraints exist for German *jemanden dazu bringen, etwas zu tun.*

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[5] For the present purpose I do not take into consideration occurrences of the idiomatic phrase *bring pressure/etc. to bear on somebody/something.*

[6] 46 first-year students in the English department of University College London were asked to judge the following pair of sentences:

(a) I wish I could bring Peter to realize his mistake.
(b) I wish Peter could be brought to realize his mistake.

31 of them considered (b) to be more natural, which is significant since normally the passive is almost always a marked structural option. It is interesting to see how such idiomatic constraints are handled in some widely used dictionaries. The Longman *Dictionary of Contemporary English* implicitly recognizes the constraint since it only gives examples with reflexive objects (cf. entry for *bring*, p. 179). So does the *Concise Oxford Dictionary* (p. 114). The *Oxford Advanced Learner's Dictionary of Current English*, on the other hand, has "bring somebody/oneself to do something" and exemplifies the former with "I wish I could bring you to see the situation from my point of view." The *OED* (*bring* 9, p. 1108) also glosses: "cause (a person or oneself) to come (to a certain course of action, etc.)." Significantly, though, all citations given either have a reflexive object or a passive matrix verb.

The "suasive" (Quirk et al. 1985:1179-1180) use of *tell* ("tell somebody to do something") has a lexical and structural German equivalent in "jemandem befehlen, etwas zu tun." However, a closer look at authentic examples from a corpus shows that at the "performance"-level this relation of equivalence is largely theoretical. German *befehlen* has connotations which rule it out as an equivalent of suasive *tell* in most informal contexts, as is shown by the following example:

(13) A: /well # /is Maureen with you #
B: /yes # shall I tell her to ring
A: /well
B: and get a taxi # to /take her home #
A: /yes /get a /do that #
(S.7.2e.2)[7]

Here, as in many similar cases, the only idiomatic rendering in German is by means of a finite-clause complement ("Soll ich ihr sagen, daß sie ein Taxi bestellen soll?").

It should be clear, however, that such verb-specific divergences between German and English norms of usage cannot be central in a contrastive analysis of the syntactic systems of the two languages. After all, they do not differ in kind from similarly arbitrary restrictions found within one and the same language (cf., e.g., *support*, which, though similar in meaning to *help*, does not normally occur with infinitival complement clauses).

In the remainder of the present paper I will therefore concentrate on three major systematic contrasts between English and German control verbs, viz.:

a) differences in the semantics of verbs admitting object-control structures in English and German;
b) differences in the temporal relation between the matrix clause and the embedded infinitive; and
c) differences with regard to the relative importance of syntactic/ configurational and pragmatic/ contextual factors in determining control-relations in English and German.

3. Differences in the semantics of verbs admitting object-control structures in English and German

German and English resemble one another rather closely as far as suasive verbs of communication, causative and enabling predicates are concerned. Most of the German equivalents of the English matrix verbs listed in these groups in Table 1 allow object-controlled infinitival complement clauses, as well:

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[7] The example is from the spoken corpus of the Survey of English Usage. The transcription has been simplified drastically. "/" marks onsets in tone-groups, and "#" stands for the close of tone-groups.

a) suasive verbs of communication:
jemanden bitten/ anflehen/ (dazu) ermutigen/ überzeugen/ überreden/ einladen/ drängen/ (dazu) herausfordern/ ...
jemandem raten/ befehlen/ auftragen/...
auf jemanden einwirken/ von jemandem fordern/ verlangen/...
etwas zu tun;

b) causative predicates:
jemanden (dazu) zwingen/ bringen/ verdammen/ verurteilen/ anleiten/ inspirieren/ verpflichten/...
etwas zu tun;

c) enabling predicates:
jemanden ermächtigen/ lehren/ berechtigen/ (dazu) ausbilden/...
jemandem helfen/ erlauben/...
etwas zu tun.

As for the remaining three groups, though, there is far less structural correspondence between the two languages, as is evidenced by the following examples:

a) Verbs of designing, planning and using:

$$\text{(14) They} \left\{\begin{array}{l}\text{adapted}\\ \text{built}\\ \text{constructed}\\ \text{designed}\\ \ldots\end{array}\right\} \begin{array}{l}\text{the engine to stand up}\\ \text{to arctic weather conditions.}\end{array}$$

$$\text{(15) * Sie} \left\{\begin{array}{l}\text{adaptierten}\\ \text{bauten}\\ \text{konstruierten}\\ \text{entwarfen}\\ \ldots\end{array}\right\} \begin{array}{l}\text{den Motor, (um) arktischen}\\ \text{Witterungsbedingungen zu}\\ \text{widerstehen.}\end{array}$$

Note that the *um zu*-variants of some of the examples given in (15) are considered marginally acceptable by some native speakers. Acceptability also increases if the matrix clause contains the particles *dafür* or *dazu* (cf. e.g. "?Sie entwarfen den Motor dazu/ dafür, arktischen Witterungsbedingungen zu widerstehen".). In natural and idiomatic German, however, infinitival complement clauses are generally avoided altogether in favour of finite adverbial clauses or various other paraphrases: "Sie entwarfen den Motor so, daß er arktischen Witterungsbedingungen widerstehen konnte."/ "Sie adaptierten den Motor für den Gebrauch in arktischem Wetter."/ "Sie bauten einen Motor, der arktischen Witterungsbedingungen widerstehen konnte."

b) Verbs of choice:

(16) They { chose him
groomed him up
… } to be their front man.

(17) * Sie { suchten ihn au
richteten ihn her
… } (um) ihr Vorzeigmann zu sein.

The acceptability of the examples in (17) again increases if the matrix contains the particles *dafür* or *dazu*, but generally speaking the infinitival complement clause would be avoided in idiomatic speech and writing.

c) Verbs of sending and taking:

(18) They { sent
took
… } her (to the theatre) to see *King Lear*

(19) ??Sie { schickten sie[8]
nahmen sie mit
… } (ins Theater), (um) *König Lear* zu sehen.

It is quite obvious that after most verbs belonging to the semantic classes discussed in a) to c) above, English admits object-controlled infinitival clauses much more readily than German. The reason for this is not far to seek. After verbs of designing, planning and using, verbs of choice and verbs of sending and taking the infinitival clause is transitional between a complement of the verb and an adverbial of the clause. It resembles a complement because, unlike most adverbial infinitives, it has object-control and cannot be perfixed by *in order to*. With the possible exception of the verbs of sending and taking, which exhibit some other peculiarities as well,[9] the inclusion of *in order to* produces an immediate shift to subject-control with mostly nonsensical semantic interpretations:

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[8] Of course, the perfectly acceptable subject-control interpretation of this sentence is not at issue here. German *schicken* occasionally takes bare infinitival complements although this option is usually confined to very short construction ("Ich schicke ihn die Zeitung holen."). Also, the object-controlled *um zu*-infinitive is somewhat less likely to be rejected after *schicken* than after the verbs discussed so far ("?? Ich shicke ihn, um die Zeitung zu holen.").

[9] Unlike, say, "We will have to design a better car," the SVO-pattern in "They sent him" is acceptable only if understood as contextually supported ellipsis. Verbs of sending and taking need an obligatory constituent in addition to the object. This additional slot may be filled by an adverbial of place, by an infinitival clause, or by an adverbial of place and an infinitival clause. A sentence such as (22) below is thus on a par with exceptional five-element clause patterns such as "A bets B a sum of money that ..." Note, however, that *send* behaves exactly as predicted in the regular four-element pattern:

They sent their daughter (* in order) to study law.

(20) * They adapted the engine in order to stand up to arctic weather conditions.
(21) * They chose him in order to be their front man.
(22) ? They sent their daughter to Cambridge in order to study law.

In some cases, moreover, the infinitives after verbs of designing, etc. can be shown to be in variation with noun-phrase complements of these verbs (cf., e.g., *design something for use in high temperatures – design something to stand up to high temperatures*).

However, these infinitival clauses, more so than most other types of infinitival complements, resemble optional adverbial clauses semantically, because they usually express such typically adverbial notions as purpose, result, or manner (*design something so that it will last forever/ in such a way that it will last forever + design something to last forever*). Arguably, infinitival clauses of the type under discussion could even be placed in a transitional category of their own and treated as object-controlled adverbial infinitives.

Clearly, such transitional structures are difficult to accommodate in the German system, where – in all but the most elevated varieties of the language – there is today a clear-cut distinction between *zu*-infinitives, functioning as complements of verbs, and *um zu*-infinitives, functioning as adverbial adjuncts of clauses. *Um zu* is unlike English *in order to* in that it is obligatory, but like *in order to* it strongly suggests a subject-control interpretation of the infinitival clause it precedes. In other words, it is the obligatory marking of all adverbial infinitives with *um zu* that relegates object-controlled adverbial infinitives to a grammatically marginal status in German. Prescriptive grammarians of German acknowledge this fact by outlawing the object-controlled *um zu*-infinitive altogether, whereas descriptive work (Bech (1955:97); Langhoff (1980:318-19)) explores the conditions necessary for a marked control-relation to prevail.

If – in the unmarked case – *um zu* is incompatible with object-control, then the German structures should be acceptable if the matrix verb is in the passive, and this is, in fact, what happens:

(23) * Sie entwickelten den Motor, um arktischen Witterungsbedingungen zu widerstehen.
(24) Der Motor wurde entwickelt, um arktischen Witterungsbedingungen zu widerstehen.

In (23) there is a potential conflict between object-control (suggested by the meaning of the sentence) and subject-control (suggested by *um zu*). This conflict is resolved in (24) because passivization eliminates one of the two rival controllers.

4. Differences in the temporal relation between the infinitive and the matrix clause

The analysis so far has shown that, with regard to object-controlled adverbial infinitives, German is more restrictive than English. In other respects, however, the converse is true. As Table 1 shows, all English object-control verbs are "forward-looking" predicates, that is the action or state referred to in the infinitive cannot precede the action or state referred to in the matrix clause. No such restriction exists in German, and this means that all of the following are acceptable in German but not in English:

(25) Man beschuldigt ihn, gestohlen zu haben.
(26) Sie klagten ihn an, gestohlen zu haben.
(27) Sie wollten mir einreden, einen Fehler gemacht zu haben.
(28) * They accuse him to have stolen something.
(29) * They wanted to convince me to have made a mistake.

In addition to the object-control interpretation ("Sie wollten mir einreden, daß ich einen Fehler gemacht hätte."), sentence (27) also allows a subject-control reading ("Sie wollten mir einreden, daß sie einen Fehler gemacht hätten."). The intended interpretation would, of course, be inferred from the context. I will return to such cases in the discussion on "pragmatic" control below. This discussion will also make clear why in German, but not in English, object-controlled infinitival complement clauses can be anterior to the matrix.

5. The varying scope for "pragmatic" control in English and German

The control properties of English verbs can largely be accounted for configurationally:

(30) I asked to go.
(31) I asked him to go.

In (30), there is subject-control, presumably because in this sentence the subject of the matrix clause in the closest potential controller. In (31), an object intervenes, and the result usually is that the infinitive is interpreted as being controlled by the object.

As research has shown, a totally configurational account of control in English meets with certain difficulties. The most well-rehearsed exception is, od course, provided by *promise* and a small number of synonyms, after which the infinitive exhibits subject-controll regardless of whether an object intervenes or not. Occasionally, there is a shift in control if the infinitive contains *be allowed to*. The relevant examples discussed in Radford (1985:381) are:[10]

(32) John pleaded with me to go (i.e. that I should go).
(33) John pleaded with me to be allowed to go (i.e. that he might be allowed to go).

Unmarked object-control interpretations can also be overridden if they are extremely unlikely in a given context. Thus:

(34) He asked his boss to have an afternoon off.

would normally receive a subject-control interpretation in spite of the overtly present object.

Even in English, then, control sometimes cannot be explained without having recourse to semantics and pragmatics. However, there should not be any doubts about the marginal status of such phenomena in English. This even goes for the "promise somebody to do something"-construction, despite its prominent status in the linguistic debate. In the elicitation experiment referred to above, I asked students to indicate which of the following sentences they considered more natural:

(35) I promise you that I will pay back the money.
(36) I promise you to pay back the money.

38 out of a total of 46 students preferred (35) with its *that*-clause. As for the few other members of the *promise*-class, the situation is even more clear-cut. Thiem (1980:391) has: "The tyrant offered (to) his allies to declare war on their enemies." and accepts this as grammatical (on a subject-control interpretation). However, all English and American informants I informally consulted on this sentence regarded it not only as stylistically inferior but as downright unacceptable and argued that the infinitival complement should be replaced by a *that*-clause. As for pragmatics overriding syntax (cf. example (34) above), this seems to be a rather remote possibility, as well. Again, the results of the elicitation experiment mentioned above are instructive. Presented with the sentence: "The two prisoners asked the guard to see their families," 24 of the 46 informants gave it the rather unlikely object-control interpretation, and only four assumed subject-control. (The remaining 18 ticked the "don't know"-box.) Presumably, the syntactically "regular" interpretation would have been even more dominant if the two alternatives had not been explicitly mentioned in the instructions.

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[10] Consider also the "infamous problem of control in passive *promise*" dealt with in Jackendoff (1985:457):

* Bill promised Harry to be allowed to leave.
Harry was promised to be allowed to leave.

Even if one acknowledges the existence of pragmatic control in exceptional cases, it is nevertheless true to say that control in English is for the most part anchored in surface syntax. If an object is inserted between the subject of the matrix clause and the infinitival complement clause, it is very likely to become the controller. If, on the other hand, the object is dropped from the sentence, control shifts back to the subject.[11] This, incidentally, may be one of the reasons why the scope for object-control in the semi-adverbial infinitives following verbs of designing, planning and using, verbs of choice and verbs of sending and taking is so much greater in English than in German.

The relative importance of configurational and pragmatic factors in determining control is reversed in German. The configurational factor, which is so important in English, normally does not play any role, at all:

(37) Ich bat sie, zu gehen.
(38) Ich bat, zu gehen.

In (38) the object continues to be the controller even though it is absent from the sentence. In the absence of more precise specifications from the context, the sentence would be interpreted as: "I asked that some unspecified agent should go."

Similarly, no configurational principle helps to resolve the ambiguity of German sentences such as:

(39) Sie bot uns an, selbst nach dem Rechten zu sehen.

Out of context it is impossible to determine whether the subject of the matrix clause ("Sie") or its object ("uns") is the implied subject of the infinitival clause. Below I give one example in which the context suggests the former interpretation, and one in which it suggests the latter:

(40) Da sie gerade Zeit hatte, bot sie uns an, selbst nach dem Rechten zu sehen.
(41) Sie bot uns an, selbst nach dem Rechten zu sehen, falls wir ihr nicht glaubten.

In the case of *anbieten*, the configurational aspect comes into play if the object of the matrix verb is dropped:

(42) Sie bot an, selbst an, selbst nach dem Rechten zu sehen.

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[11] In addition to the above-mentioned examples, there are, of course, constructions such as "He said to stop at the traffic lights" or "She motioned to remain seated," which superficially resemble German "Er bat, den Raum zu verlassen." However, such English sentences are probably shortened variants of corresponding *for*clauses ("He said for them to stop at the traffic lights.") and hence not directly relevant to a discussion of object-control.

Here, unlike in the *bitten*-example given above, the object-control interpretation of the infinitive usually disappears together with the object. In German, therefore, *anbieten* represents a type of control verb different from *bitten*, a fact which will be explored in greater depth below.

It has been shown that the configurational mechanism normally determining control in English need not apply if the infinitive contains the modal paraphrase *to be allowed to*. In German, with its much stronger tendency towards pragmatic control, modal verbs are, of course, used much more widely and systematically in order to bring about shifts in control. In English, the addition of *to be allowed to* in: "He asked (to be allowed) to go." is redundant additional marking of an interpretation which is clear on configurational grounds alone. In German, on the other hand, the use of *dürfen* is the only way of eliminating object-control in the infinitive:

(43) Ich bat, den Raum zu verlassen. (i.e. "I asked for somebody else to leave the room.")
(44) Ich bat, den Raum verlassen zu dürfen. (i.e. "I asked to leave the room.")

Even the passive auxiliary *werden* triggers this shift in control in German, which again produces an interesting linguistic contrast:

(45) Paul asked Mary to go to the company doctor.
Paul asked Mary to be examined by the company doctor.
(46) Paul bat Maria, zum Firmenarzt zu gehen.
Paul bat Maria, vom Firmenarzt untersucht zu werden.

The two English sentences in (45) are largely synonymous. In both cases it is Mary who will see the company doctor. This is not so in the German sentences in (46). Here there is object-control for the active infinitive but subject-control for the passive infinitive ("Paul asked that **he** might be examined."). The shift in control also produces the expected consequences for the passivization of the matrix verb:

(47) Mary was asked to be examined by the company doctor.
(48) *Maria wurde gebeten, vom Firmenarzt untersucht zu werden.

Unlike (47), (48) is ungrammatical because the passivization of the matrix clause eliminates the controller of the infinitive in German.

To sum up, then, the English mechanism of control is mainly rooted in configurational constellations at the level of syntactic surface structure. "Pragmatic" control-relations, which must be inferred from the meaning of an utterance and the context of situation, persist in some marginal areas. In German, by way of contrast, syntactic surface structure hardly ever influences control-relations, and pragmatic control is fundamental. What remains to be done is to sketch the determinants underlying this pragmatic system of control.

In this connection, it is necessary to realize that, as has already been mentioned, there are two slightly different types of control-verbs in German. The first, exemplified by *bitten* below, is closer to English, whereas the second, illustrated by *einreden*, is without parallel. The following array of examples will bring out the most salient differences between the two types:

(49a) Er bat uns, das Haus zu verkaufen.
(49b) Er bat uns, das Haus verkaufen zu dürfen.
(49c) * Er bat uns, das Haus verkaufen zu müssen.
(49d) * Er bat uns, ein guter Freund zu sein.
(49e) * Er bat uns, das Haus verkauft zu haben.

(50a) Er redete uns ein, das Haus zu verkaufen.
(50b) Er redete uns ein, das Haus verkaufen zu dürfen.
(50c) Er redete uns ein, das Haus verkaufen zu müssen.
(50d) Er redete uns ein, ein guter Freund zu sein.
(50e) Er redete uns ein, das Haus verkauft zu haben.

In the *bitten*-examples in (49), the controller of the infinitival clause is specified, presumably in the lexical entry of the verb. It is the object in the unmarked case (cf. (49a)), and the subject if the infinitival clause contains an appropriate modal or auxiliary verb (cf. (49b), (49c)). (49c) is asterisked because in this particular sentence the modal verb *müssen* is incompatible with a subject-control interpretation. (49d) is unacceptable because, as in (49a), the syntactic structure requires an object-control interpretation, while facts of concord ("Er" – singular; "uns" – plural; "ein Freund" – singular) demand subject-control. (49e) is not acceptable because *bitten* is a forward-looking predicate (unless, of course, the perfect infinitive can be understood as a reference to future perfect in context). In the *einreden*-examples in (50), on the other hand, both the subject and the object are available as controllers throughout. Also, *einreden* is not always a forward-looking predicate, and this means that there is at least one meaningful interpretation for each of the five sentences. To be precise, (50a) would normally receive an object-control interpretation. Note, however, that the chief argument against subject-control is not syntactic but merely unlikelihood in real-world terms. In (50b), (50c) and (50e), subject-control and object-control are equally likely, and the intended interpretation would have to be inferred from the context. In (50d), where object-control is ruled out on grounds of number concord, there still remains a subject-control interpretation to make the sentence acceptable.

Why does German have this twofold system of control in *Verb + object + zu-infinitive*-structures? Explanations which suggest themselves as obvious at first sight do not stand up to scrutiny. Thus, the contrast has nothing to do with the fact that *bitten* takes an accusative object whereas *einreden* takes a dative or a prepositional object. *Helfen*, *raten* and *befehlen* largely behave like *bitten*, and nevertheless these verbs all take dative objects. On the other hand, *überzeugen* and *warnen* take accusative objects and still have the same control-properties as *einreden*. It seems that in determining control, German speakers refer to finite paraphrases of a given infinitival clause or, where possible, to underlying speech acts. The following table schematically illustrates this process. It clearly shows that the ultimate reason for the different control-properties of the *bitten* and *einreden*-classes of verbs is that only the latter can be used to introduce statements. *Bitten*-verbs introduce only "forward-looking" speech-acts such as commands or requests.

TABLE 2: Interpretive mechanisms determining control in German

infinitival clause	finite paraphrase(s)	underlying speech-act(s)	control
Er bat uns, das Haus zu verkaufen.	… daß WIR … sollten * … ob ER … sollte	imperative "Verkauft!" * question ("Soll ich …?")	OBJECT * SUBJECT
Er bat uns, das Haus verkaufen zu *dürfen*.	* … daß WIR … durften … ob ER … dürfe	* imperative ("Dürft!") question ("Darf ich?")	* OBJECT SUBJECT
Er bat uns, angestellt zu *werden*.	* … daß WIR … würden … ob ER … würde	* imp. ("Werdet angest.!") question ("Werde ich?")	* OBJECT SUBJECT
Er redete uns ein, das Haus zu verkaufen.	… daß WIR … sollten … daß ER … würde	imperative ("Verkauft!") statement ("Ich werde.")	OBJECT SUBJECT
Er redete uns ein, das Haus verkaufen zu *dürfen*.	… daß WIR … dürften … daß ER … dürfe	statement ("Ihr dürft.") statement ("Ich darf.")	OBJECT SUBJECT
Er redete uns ein, angestellt zu *werden*.	… daß WIR … würden … daß ER …würde	statement ("Ihr werdet.") statement ("Ich werde.")	OBJECT SUBJECT

If there is a relationship between control in infinitival clauses and underlying speech acts in German, then it is understandable why English-German language contrasts take the form they do. Unlike English "He asked to leave the room," German "Er bat, den Raum zu verlassen" cannot have subject-control for the infinitive because there is no match with an appropriate speech act. (In English, where control is largely determined configurationally, no such match is necessary):

(51) * Er bat: "Soll ich den Raum verlassen?"
* Er bat, ob er den Raum verlassen sollte.

On the other hand, the combination of *bitten* with an imperative is possible, and this means that object-control is assumed even though there is no overt object in the sentence:

(52) Er bat: "Verlaßt den Raum!"
Er bat, daß man/ die Anwesenden/ etc. den Raum verlassen sollte(n).

Given the pragmatic, speech-act based mechanism of control dominant in German, not even the notorious *promise*-class of verbs is an exception. German *versprechen* normally exhibits subject-control, but indeterminate control if the infinitival complement clause contains a modal verb. This is what is to be expected in view of the possible underlying speech acts. Compare:

(53a) Ich verspreche dir, das Buch zurückzugeben.
(... daß **ich** das Buch zurückgeben werde.)
(... * daß **du** das Buch zurückgeben wirst.)
(53b) Ich verspreche dir: "Ich werde das Buch zurückgeben."
* Ich verspreche dir: "Du wirst das Buch zurückgeben."

(54a) Ich verspreche dir, teilnehmen zu dürfen.
(... daß **ich** teilnehmen darf.)
(daß **du** teilnehmen darfst.)
(54b) Ich verspreche dir: "Ich darf teilnehmen."'
Ich verspreche dir: "Du darfst teilnehmen."

In the first of the two sentences in (54b) *versprechen* has the rather specific sense of "to vouch for the truth of the fact that (I will be allowed to take part)."

6. *Conclusion*

The contrastive analysis of object-control in English and German has pointed out major differences between the two languages. First, the sets of matrix verbs embedding object-controlled infinitives are only partially co-extensive in English and German. English freely allows what I have termed "object-controlled adverbial infinitives" after verbs of designing, planning and using, verbs of choice, and verbs of sending and taking – a grammatical structure whose status in German is marginal at best. In German, though, object-control is not restricted to "forward-looking" predicates, as it is English. Secondly, control in English is generally expressed by syntactic configurations in surface structure, whereas a speech-act based pragmatic framework is necessary to account for control in German. Ultimately, the reason for the greater importance of pragmatic control in German is word order. A configurational definition of control is very difficult to carry through if, as is the case in German, the object/ controller does not have a fixed position in the sentence "Seiner Frau boten wir an, mitzukommen."/ "Wir boten seiner Frau an, mitzukommen.").

One question which remains to be answered is how the findings of the present study tie in with recent work in the comparative typology of English and German. Summarising the results of his comparison of major aspects of English and German syntax, Hawkins (1985:215), for example, claims that:

> "... there is a unity underlying [English-German language contrasts], involving a realignment in the mapping between surface form and meaning. The morphological and syntactic structures of German are regularly in closer correspondence with their associated semantic representations than those of English. English tolerates greater collapsing of distinct meanings onto common surface forms (whence greater ambiguity and vagueness), and permits more raising, extraction and deletion of semantic arguments than does German."

Hawkins advances this generalization after carefully studying individual syntactic contrasts between the two languages, and its general validity is beyond doubt. In one respect, the present paper provides additional support for his thesis: As has been shown, there is obligatory formal marking for the distinction between adverbial infinitives (*um zu*) and infinitival complements (*zu*) in German, whereas in English the *to*-infinitive can perform both functions. On the other hand, however, it is worth mentioning that the control-phenomena investigated here do not quite fit into the general picture. Pragmatic control of inifinitival complement clauses, with all the syntactic ambiguity it engenders, is pervasive in German, but very rare in English. Also, there is greater scope for the deletion of controllers in German than in English.

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THE LEXICAL FIELDS BROAD/WIDE/THICK ANALYSED AND COMPARED WITH THEIR GERMAN COUNTERPARTS BREIT/WEIT/DICK*

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The lexemes under scrutiny belong to the class of spatial adjectives with includes items like *large*, *big*, *high*, *deep* (and their antonyms). The aim of our article is to establish the respective lexical fields or subfields by means of the relevant semantic components and features. We use *lexical fields* in the sense of Coseriu's and Lipka's *Wortfelder* (see Coseriu (1975:30f.); Lipka (1980:94f.); compare, however, Kastovsky (1982:125f.). A *semantic component* – equivalent to Kastovsky's *semantische Dimension* (1982a:86) – may be SEX and MATURITY, from which the *semantic features* (see Kastovsky (1982a:84): *semantische Merkmale*) MALE/FEMALE and ADULT/NON-ADULT can be derived (see Kastovsky 1982:84 & 91). CIRCUMFERENCE/ STATURE /DISTANCE (BETWEEN TWO OPPOSITE) SIDES AND DIAMETER/EXTENSION OF SURFACES (two-dimensional) and EXTENSION OF SPACES AND CAVITIES (three-dimensional) can, we feel, be considered semantic components in the lexical fields which we shall be examining.

Our semantic description of the subset of spatial adjectives in question will start from the denotational reading (see Bierwisch 1970:43-46). At a later stage connotations and additional sememes will also be taken into account. As for the German adjectives which refer to dimensions of physical objects, namely *lang, weit, breit, hoch, tief, dick, groß* (and their antonyms) Manfred Bierwisch (1967:1-36) has laid the foundations to their semantic description. His work on that subject was later supplemented by Paul Teller's article (1969:185-217). Of the monographs and manuals on the subject Ernst Leisi's *Wortinhalt* (5th ed. 1975) compares German semantic structures with their English counterparts; see also *Praxis der englischen Semantik* (2nd ed. 1985) by the same author.

Our word material represents a selection of the most frequently used spatial adjectives referring to the shape of human beings and animals, to the parts of their bodies, also extending to inanimate things, e.g. E *ample, broad, fat, full, stout, thick, wide* and G *breit, fett, voll, kräftig, dick, weit*.

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* Based on "Kontrastive Untersuchungen zum Englischen und Deutschen anhand des Wortfeldes fat, obese, stout" (M. A. thesis by Annette Dell, University of Wupertal).

The lexical fields (or rather subfields) BROAD/WIDE/THICK and their German counterparts BREIT/WEIT/DICK seem to contain so-called spatial adjectives which characterize the shape of human beings and animals, parts of their bodies also referring to inanimate things. Manfred Bierwisch points out that "A more detailed analysis reveals furthermore that adjectives like *high, long, wide, tall* etc., do not relate directly to objects, but rather to particular dimensions of objects" (1970:173). John Lyons states that: "The shape, dimensionality and orientation of entities (and spaces) is crucial in the analysis of the meaning of such positional and qualitative adjectives in English as 'long':'short', 'far':'near', 'high':'low', 'deep':'shallow', 'wide':'narrow'; and 'thick':'thin'" (1977:701). One would probably not go so far as to consider SHAPE itself as a semantic feature or component (Friedrich 1970:404). According to Lyons "The distinction between the positional and the qualitative sense of an adjective like 'high' rests upon the distinction between distance and extension" (1977:701).

. Adjectives like *high, wide, thick*, etc. consequently describe the maximal or main dimension of mostly unoriented physical objects (Lyons 1977:701) which are grammatically represented by the subjects or heads, e.g. *a high tower, a wide plank, a thick waist*. They either characterize one dimension, e.g. *a long pole, a tall man*, or two dimensions, e.g. *a wide surface, a thick neck*, or three dimensions, e.g. *a large building, a big cube*. We wish to equate Lyons' term extension of objects with dimension, which is always contained in the semantic reading of our spatial adjectives. On the other hand distance can be indicated by a measure phrase which is only possible with the adjectives standing for a maximal dimension (+ POL). Thus, we can say 'This passage is *three feet wide*', but not 'This passage is *3 feet narrow*'.

In fact, Bierwisch has pointed out that POLARITY plays an important role in the (sc. *semantic*) structure of adjectives 1967:6). He has given a list of antonyms like *weit:eng, breit:schmal, dick:dünn, dick:schlank*. The feature POLARITY (i.e. + POL) is assigned to those adjectives which characterize the maximal or main dimension of physical object. Thus, G *breit, weit, dick* and E *broad, wide, thick* (among others) show the feature (+ POL) in their semantic reading. In a later article the elements (+ POL) and (− POL) are replaced by the relation 'greater than' and its converse (Bierwisch 1969:429). If we say: "The table is *high*", this statement may be paraphrased as "The table is *higher* than a certain norm. The norm involved in this paraphrase is bound to the class of objects to which the subject of *high* belongs." (Bierwisch 1970:173). This is what Ernst Leisi calls "Speziesnorm" (1975:101f.). In addition to "Speziesnorm" he postulates three more norms which are fundamental to the semantic description of the corresponding subsets of spatial adjectives:

"Proportionsnorm" a always takes into account the relation between *two* dimensions of a given physical object. A human being may be referred to as either G *dick* /E *fat* or G *dünn* /E *thin* if the relation between his/her *length* (or *height*) and *breadth* tends too much in either the horizontal or the vertical dimension compared with the average ('normal') individual (Leisi 1975:120f.). The second norm is called "individuelle Erwartungsnorm" (Leisi 1975:103). It is based exclusively on subjective judgements, e.g. someone may say, referring to a baby girl whom they have not seen for a long time: "Gosh, she has grown *fat*!". The third parameter is the "Tauglichkeitsnorm" (Leisi 1975:103f.). It plays an important part within the subset of spatial adjectives like *weit – eng*, *wide – narrow*, e.g. G *ein enges, langes Rohr*, E *a wide/narrow passage*.

In the above mentioned article Bierwisch speak of "relative adjectives" (1969:428), referring to the spatial adjectives under discussion. They are termed *relative* because their meaning can only be described in relation to the physical objects or living beings they refer to, e.g. the adjective phrases *a stout lady* (to be derived from the predication *the lady is stout*). or G *die kräftige Dame* (*die Dame ist kräftig*, i.e. *dick*) do not show an inherent property of the subjects and their referents (i.e. *lady*, *Dame*), "Relative adjectives specify a certain parameter and indicate that the object(s) referred to exceed (or fall short of) a certain point within that parameter." (Bierwisch 1969:428). The term *parameter* may be equated with an *implicit norm* (which can be further subdivided as was shown above). or with an *evaluative scale* on which antonymous adjectives like *fat – slim, dick – schlandk* stand for the extreme values, i.e. they represent the *poles* on the scale in question and, consequently, justify the assumption of a semantic feature POLARITY, as we have shown earlier (see Kastovsky (182:140); Leech (1974:108)).

Yet, the polarity, or as Dieter Kastovsky calls it "the privative opposition", which exists between the semantic content of adjectives such as E *fat – lean*, *thick – thin*, *long – short*, G *dick – dünn*, *lang – kurz*, etc., can be neutralized in certain contexts, e.g. "How *long* is this cigarette?" (1982b:40). If followed by a meausre phrase the spatial adjectives under scrutiny do not express a deviation from a norm, i.e. the opposition /+ POL : – POL/ is neutralized, e.g. "there was a band of steel, *a foot wide* and *two inches thick*." (Golding 1967:132). "Und vielleicht mußte sie schon morgen wieder hinaus aufs Land und vier oder sechs Stunden lang durch eine *achtzig Meter lange* und *vierzig Meter breite* Baumkultur hinter ihrem Vater herstapfen." (Walser 1982:242).

As we pointed out earlier spatial adjectives like E *broad/wide/thick/high* a G *breit/dick/hoch* relate to maximal or main dimensions of animate or inanimate objects (see p. 2 above). Thus, either one horizontal dimension, i.e. length, or two horizontal dimensions, e.g. the extension of a given surface, the diameter of an object, or three dimensions, i.e. 2 horizontal extensions and one vertical extension of a living being or an inanimate object are involved. The following lists showing adjectives and their subjects should clarify this:

noun	*(1 Dim)*	*(2 Dim)*		*(3 Dim)*
stripe	: long	wide		– – –
board	: long	wide		thick
door	: high	wide		thick
table	: high	long		wide
cupboard	: tall	wide		deep
river	: long	broad		deep
nail	: long		thick	
pole	: long high		thick	
tower	: high		wide	

(Bierwisch 1970:174)

In some contexts *broad* can replace *wide*, which is still much more frequently used than the former, e.g. *a broad expanse*, *a broad shadowy garden* (see below the discussion of *broad*$_2$ on p. 109).

noun	*(1 Dim)*	*(2 Dim)*		*(3 Dim)*
Wagen	: lang	breit		hoch
Schrank	: hoch	breit		tief
Tür	: hoch	breit		dick
Brett	: lang	breit		dick
Zigarette/ Zigarre	: lang		dick	
Turm	: hoch		dick	
Stange	: lang hoch		dick	
Fenster	: hoch	breit		– – –
Straβe	: lang	breit		– – –
Mensch	: groß		dick	

(Bierwisch 1967:15)

The list shows that two dimensions can be collapsed in one, e.g. *thickness*: this is the case with *Zigarette, Turm, Stange* (see Bierwisch 1967:15). This is also true of English spatial adjectives: "If the extension of the object in the other two dimensions is negligible in relation to its length, we then collapse these two dimensions, as it were, in the single dimensions of thickness: we talk, for example, of *a long thick pole.*" (Lyons 1977:702). As for the maximal dimension of three-dimensional physical objects (Bierwisch (1967:18); Lyons (1977:701f.)) we do not assume that the vertical dimension will be the maximal one. We abstain from postulating a feature (+SECOND) if one of the non-vertical dimensions is maximal (Bierwisch 1967:18). The main dimension of the object characterized will be the one expressed by the spatial adjective, and it may not always be identical with the maximal one. Taking for example the phrase *ein hoher Turm /a high tower*, both maximal and main dimension happen to be identical, but in the example G *ein dickes Brett* /E *a thick plank* we regard *thickness* as the main dimension, which is obviously different from *length*, the maximal extension of a plank under normal circumstances. Of course, *width*, too, may be the main dimension in this case, e.g. G *ein breites Brett* /E *a wide plank.*

A considerable number of the adjectives examined cannot modify any possible class of subjects. The following table includes the relevant lexemes of which only G *dick* is without restriction (see Leisi 1973:44):

unrestricted	restricted to			
	things	animals and humans	humans	women
dick	*thick*	*fat*	*plump* *stout* *corpulent*	*buxom*

Of curse, E *thick* may refer to parts of the human body, e.g. *a thick waist.* When referring to whole persons it denotes a specific quality of the mind: *a slightly thick young man* means that he is slightly stupid. – Leisi points out that unlike E *wide*, which can be used with solid bodies, e.g. *wide oak-boards*, G *weit* can only refer to cavities, e.g. *eine weite Öffnung*, and to surfaces, e.g. *ein weiter Sandstrand.* Thus *a wide plank* has to be rendered by G *ein breites Brett* (Leisi 1975:44).

It becomes obvious that the meaning of the spatial adjectives concerned will be influenced – to a certain extent – by the class of subjects they modify. We stated earlier that dimensional adjectives do not possess a completely independent lexical reading, but that their meaning is largely determined by the *size, extension* and *shape* of the physical objects they refer to (see also Piitulainen (1981:24 and 34)). In this treatment of spatial adjectives Franz Hundsnurscher points out that the semantic description of these lexemes should contain features of the semantic structure of the nouns they modify (1970:104-106).

Referring to *a plank/a board*, E *thick* characterizes the distances between the opposite sides of that object, when used with parts of the body

(±HUMAN) it denotes the circumference, e.g. *his thick neck, a negro's thick lips; like thick black coiling serpents.* Consequently, we postulate *thick*$_2$ covering the latter and *thick*$_1$covering the former meaning. The same is true of G *dick*, which is slipt up into *dick*$_1$ as examplified in *ein dickes Mädchen, seine dicke Oberlippe; ein dicker roter Wurm*, and into *dick*$_2$ as in *ein dickes Brett/eine dicke Bohle* 'a *thick* plank', *ein dickes Buch/ein dicker Bleistift*, 'a *thick* book, a *fat* pencil'.

It goes without saying that adjectives and their subjects must not contain contradictory semantic features in their lexical reading. Thus, **a buxom young man* is excluded as is **a married bachelor* (see Kastovsky 1982a: 107, Burgschmidt and Götz 1974:231f.). Both *buxom* and the class of subjects modified must contain the feature (-MALE), e.g. "Sandra Dix, the *buxom* blonde" (*Lodge, Small World*, 83).

Besides the basic semantic content of adjectives like E *thick/fat* – G *dick/fett*, which consists in the *circumference* of the objects referred to exceeding an implied norm to a greater or lesser extent (see above p. 3), their lexical reading exhibits additional sememes which serve to differentiate the respective members of the subfield in question from each other. The additional sememes SMALLNESS and STRENGTH seem to occur more frequently with the English adjectives examined than with their German counterparts, e.g. E *stocky*, which contains both, e.g. "her red illegal dress not yet settled into folds around the *stocky* body" (Golding 1967:126), which is also true of G *stämmig*, e.g. "eine *stämmige* kleine Frau mit runden Brillengläsern" (Brigitte 5 /1985:125), the aditional sememe DIGNITY is to be found with E *portly*.

In fsact the adjectives under scrutiny do have connotations which may be connected with style (*formal – informal*, etc.), or with the speaker's attitude (*pejorative – meliorative*), or may be socially motivated (*euphemistic*, etc.). Connotational reading of any given set of lexemes must be kept apart from the denotational reading. It is, however, based largely on convention and is independent of individual usage. One and the same lexeme may be unmarked or neutral for connotation, e.g. *appoint* 'to put in or choose for a position/job', but compare *Let's appoint a day to have lunch together*, which is marked for connotation, i.e. (+FORMAL) (see Hansen et al. 1982:19-25). Thea Schippan postulates seven subsets of connotations, of which "die sozialen Konnotationen", "die situative-emotionalen" und "die kommunikativ-funktionalen Konnotationen" (Schippan 1983:273f.) may be most relevant in connection with the class of spatial adjectives to be examined below.

The indications of whether an adjective shows (or not) a *stylistic, euphemistic* or *pejorative* (DCE: *derogatory*) connotation are derived from the reference works consulted (see bibliography, although the DCE was used mostly for English and the Duden consulted in most cases for German adjectives). Thus, G *mollig* is clearly (+ INFORMAL), *vollschlank* (+ EUPHEMISTIC), and *feist* carries a *pejorative* connotation. E *fat* may be unmarked if used to refer to animals, e.g. *to dine on fat capons, some fat white ducks,* and even if used to characterize parts of the human body, e.g. *he raised his fat, protuberant hand,* "I wish to God I could feel like that old black bitch with her *fat* cheeks, and sing". (Osborne 1959:71). In reference to persons it may be either neutral: e.g. "Mr. Player was *fat* and red-faced" (Lessing, *Martha Quest*, 207), a jolly, *fat* fellow, or uncomplimentary (i.e. *derogatory*), e.g. "Are you sure this doesn't make me look *fat*?" (*Company* 5/ 1984, 98).

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* Based on "Kontrastive Untersuchungen zum Englischen und Deutschen anhand des Wortfeldes fat, obese, stout" (M. A. thesis by Annette Dell, Univeristy of Wuppertal).

In addition to the dictionaries consulted (see under REFERENCES) and the short questionnaire which was circulated among a dozen native speakers of English (for problems concerning the German spatial adjectives we have to some extent relied on our native speaker intuition), a selection of English and German novels, short stories, plays, journals and newspapers was used as a corpus to confirm or to modify the information found in the reference works. Only in very few cases were the indications given by the dictionaries actually modified, e.g. E *broad* referring to the stature of persons is found in the corpus, e.g. "He was a short *broad* man." (Murdoch 1957:90) – see the discussion of *broad*$_3$ below (p. 110). *Broad*$_2$ is clearly less frequently used than *wide*$_1$ in contexts like *the broad old table*, where *wide* is preferred. Yet we cannot agree with Paul Teller when he asserts that "*broad* never takes a measured phrase" (1969:205), although this may also be a matter of frequency. In fact, a quotation like we have made the path "*ten feet broad*" (LNUD: 116, s.v. broad 1b) confirms our assumption. Of course, *wide* would also be possible, e.g. *a passage three feet wide* (i.e. having a specified *width*; LNUD: 1120, s.v. *wide* 2a).

Adjectives describing *fatness/corpulence* and *stature* of persons are most likely to be encountered in women's magazines which deal with fashion and give advice on figure problems: "'Ich war schon als Kind *mollig*'"; "'Jetzt bin ich nicht mehr zu *fett* für's Ballett'" (*Brigitte* 2/1984). – "'if an *obese* person loses weight (...)'" (*Company* 5/1984, p. 78). Here is a letter to the editor of *Company* (February 1984) which is in reaction to an article entitled "How Men Really Feel About *Fat* Women". The reader writes as follows: "While finding it a great comfort that many men like *fat* women I am still upset that *fat* women do not like themselves. (...) So I stay in and nibble, and get *fatter*."

While recognizing the limited value of definitions found in current monoligual dictionaries, which mostly try to give a more or less pertinent semantic paraphrase, we could not dispense with them. The quotations and patterns of usage helped us to gain insight into possible collocations of the class of spatial adjectives examined and, last but no least, to establish existing connotations (see above). *Roget's Thesaurus of English words and phrases* (ed. S.M. Lloyd 1982) merely served as a starting point, as did *Der deutsche Wortschatz nach Sachgruppen* (ed. F. Dornseiff, 7th edition 1970). On the other hand, reference works such as *Webster's New Dictionary of Synonyms* (ed. P.B. Gove 1973) proved to be most helpful because this dictionary makes semantic relations between the lexemes of a given lexical field explicit and provides illustrations and patterns.

We are, of course, fully aware of the fact that all the quotations – either from dictionaries or from the corpus of English and German literature – illustrate possible collocations of the adjectives under discussion with single nouns as subjects, and not with whole classes of nouns. Thus, if "A *squat* little horse was his best friend" (sentence no. 3 of the questionnaire) is still possible, this does not mean that *squat* will collocate with all nouns denoting quadrupeds. Some adjectives are restricted as to the class of their subjects: thus, *a full face* is acceptable, while *full legs* is unacceptable (see below full$_1$); "with a very *full* skirt" is equally acceptable, while "wearing a *full* blouse" is clearly unacceptable (see below *full*$_2$); compare, however G "eine gebückte Frau in *weiten* Röcken", "die Frauen hatten lange Röcke an mit *weiten* Blusen" (see below s.v. *full*$_2$).

Commenting on the following sentence pairs in the questionnaire – He saw a *wide* expanse of livid colour/He saw a *broad* expanse of livid colour and Behind the house is a *wide* shadowy garden/ Behind the house is a *broad* shadowy garden – one of our informants remarked that in both contexts *broad* sounded more abstract than *wide*. This may explain the preference for *wide* in phrases which give the distance between two opposite sides/ends, etc. (see above p. 107; and see below the discussion of *broad*$_1$ and *wide*$_1$). Yet, the OALD quotes "the *broad* expanse of the Pacific" (OALD: 298, s.v. *expanse*). The word *broad* seems to show more figurative (non-spatial) sememes than *wide*, e.g. *a man of broad* (i.e. liberal) *views*, a *broad* (i.e. strongly marked) *accent* (see OALD: 107, s.v. broad).

Referring to the body build or stature of humans we find an additional meaning of this adjective, which is represented by *broad*$_3$: "He was a short *broad* man". (Murdoch 1957:90). "His body was *broad* beyond squareness." (Lessing, *Martha Quest*, 96). It may also denote bodily parts: "onto her *broad* square rather masculine face came a look of patient regret". (Lessing, *Martha Quest*, 70). The same is true of G *breit*$_2$, the equivalent of E *broad*$_3$: "Auch er hatte die *breite* Gestalt des Vaters, doch hatte sie sich ins Behäbige gedehnt." (Feuchtwanger 1983:16). "Abijam sah den empörten jungen Menschen, das *breite*, massige Gesicht, dem die flache Nase etwas Löwenhaftes gab." (Feuchtwanger 1983:40).

Broad$_2$ denoting the distance between two opposite sides of an object rivals with *wide*$_1$, its synonym, which, hoever, seems to be more frequently used than *broad*$_2$ (see the discussion on p. 109).

Our first lexical subfield to be discussed contains adjectives like E *fat*$_1$, *thick*$_2$, *obese, stout*$_1$ etc. – G *dick*$_2$, *fett, korpulent, beleibt, kräftig* etc., which denote the shape of human beings, of animals, and of body parts of humans and animals. The semantic component which is crucial in the lexical reading of this subclass of dimensional adjectives is CIRCUMFERENCE. Circumference of physical objects (which it itself determined by two horizontal dimensions) clearly exceeds an *implicit norm* (or *parameter*) which is to be derived from the proportion of the *length* (or *height*) and *breadth* of the average individual, i.e. "Proportionsnorm". Thus, a *short* person will be more easily called *fat* than a tall one (Leisi 1975:102). While E *fat* roughly corresponds to G *dick, a tall fat person* will be referred to as *big* which in German must be rendered by *groß und dick* (Leisi 1975:86).

A further semantic component which is necessary for the lexical reading of the adjectives concerned is FATNESS (i.e. the amount of *fatty tissue* on the bodies of the creatures referred to. We take CIRCUMFERENCE to imply (+FATNESS). The main dimension is clearly the horizontal dimension of *breadth* (or *with*) (see Lyons 1977:702). We regard DIAMETER as a semantic component in this subfield. It will appear in the semantic description of adjectives like *fat*$_2$, which can modify subjects standing for round(ed) objects, e.g. *a long fat pencil.*

The second subset of adjectives to be examined comprises lexemes like E *thickset, burly, stout*$_1$, *squat*$_1$, *square* – G *untersetzt, gedrungen, kräftig*$_1$, *stämmig*, which have the semantic feature STATURE (i.e. body build) in common. They refer mostly to human beings. Thus, the semantic reading of the adjectives of this subfield also takes into account the relation between the vertical and horizontal extension (i.e. length vs. breadth) which presupposes a so–called "Proportionsnorm" (Leisi 1975;102f). Yet, unlike the semantic description of the preceding lexical field E *fat* – G *dick* the feature FATNESS does not belong to the denotational reading of adjectives characterizing the bodily build of both humans and animals. Again the main dimension will be the horizontal one. More precisely, length (or height) must be regarded as the maximal dimension, while breadth must be considered the main (non–maximal) dimension which is contained in the denotational reading of the adjective lexemes quoted above (see Bierwisch 1967;18f.).

The difference between (+MAX) and (+MAIN) may become obvious through the definition which the COD gives for *square:* "having the *breadth* more nearly equal to the *length* or *height* than is usual, e.g. *a man of square frame* (COD: 1030a). In the case of inanimate objects referred to a so–called "Speziesnorm" is implied, e.g. "pours whisky (...) into two *squat, thick,* Swedish glasses (Bradbury, *History Man,* 184).

The third lexical field comprises spatial adjectives which involve the distance between two opposite sides or surfaces: they usually refer to the extensions of inanimate objects. Two of the adjectives examined can also denote the openings of things (e.g. door), of natural phenomena (e.g. cave, valley, etc.), e.g. "A *wide* door with a stone pediment faced the avenue (...)" (Murdoch 1957:24). A phrase like 'a *wide* cave' implies a three-dimensional extension, while "the tube is *two inches wide*" denotes the diameter of that object and only describes two dimensions. In these contexts E $wide_1$ corresponds to G $breit_1$, collocated with *eyes* it will be rendered by G $weit_2$.

Thus G *breit* and E $wide_1$ may characterize an *opening* (e.g. an entrance or a passage): "(...) wo schon unterem *breiten* Tor Arbeiter in riesigen steifen Schürzen warteten." (Walser, *Halbzeit*, 529), Both E $wide_1$ and G $weit_2$ may have *eyes* as their subject: "She looked at him with *wide* and delighted eyes." (Lessing, *Martha Quest*, 238). – "Unvermutet blieb sie stehen, ihre Augen wurden *weit* und wild." (Feuchtwanger 1983:49). G $weit_2$ is less frequently used than $breit_1$ to denote *openings*, e.g. *eine weites* (...) *Tor/Tal* (see Leisi 1975:88). Yet *weit* is obligatory to render E *wide* referring to the *width* of a tube, etc.: G *ein weites Rohr, ein weites Loch* (see Leisi 1975:88).

The *extension* of a street, a piece of furniture indicated by $broad_1$ and $wide_1$, which have G $breit_1$ as their only counterpart: "Gwenda looked across the *broad* mahagoni desk (...)." (Christie, *Sleeping Murder*, 107). "Marsington was an old village with a fine *broad* main street (...)!" (Murdoch, 58). However, *wide* is usually preferred if the object referred to serves a certain purpose (see Leisi 1975:104: "Tauglichkeitsnorm"), e.g.: "Along the back wall this shelf is (...) *wide* enough for a man to walk along it." (Friel, *Volunteers*, 11). Unlike G *weit*, E *wide* denotes the *extension* of solid bodies (giving the *width* as their main dimension), e.g. *a wide plank* (Leisi 1975:88). G $breit_1$ occurs in contexts like the following: "Er sprach nicht vom Krieg, sondern erzählte von kleinen Dörfern mit *breiten* Lehmstraßen in der Ukraine." (von Staden 1983:333). – "Ich setzte dem Fuß auf die erste Stufe der *breiten* hellen Holztreppe." (Walser, *Halbzeit*, 201).

E $thick_1$ and fat_2 and their German counterpart $dick_2$ describe the distance between opposite sides of three-dimensional bodies: "the airport grass is notably *thick* and coarse," (Bradbury, *Rates of Exchange*, 15). – "er (...) habe schließlich nach einem *dicken* Buch gegriffen." (Walser 1982:217). – "'und warum sollen die Leute acht Studen lang im Januar arbeiten, wenn *dicker* Schnee liegt?'" (Brückner, *Jauche*, 110). All three adjectives may refer to the *extension* of round objects (thus denoting the *diameter* as their main dimension): "'Do they (sc. the pillars) seem *thick* and strong to you, father;'" (Golding 1967:41). "Behind the rockery were loganberries: *thick*, coarse, inedible fruit, nexer fully ripe." (Trevor 1982:302). "we lit *fat* Turkish cigarettes." (Waugh 1945:24). "To talk to him in this vein was the equivalent of throwing a *fat* wad of Treasury notes into the fire." (Wain 1962:169). – "im Baumstück wurden die Goldparmänen und *dicken* Boskopäpfel reif." (von Staden 1983:341). "Josef-Heinrich beugte sich zu der *dicken* roten Kerze." (Walser 1982:313).

Finally, E *thick*$_1$ and G *dick*$_2$ may denote the consistency of various materials (e.g. cloth) and even of liquids, e.g. *a thick soup – eine dicke Suppe*. "For indeed, Miss Marple it was, nicely wrapped up in a *thick* fleecy coat." (Christie, *Sleeping Murder*, 60). "Because of his very *thick* glasses he thrusts his face right up to people when he is speaking to them." (Friel, *Volunteers*, 16). – "Überall lagen Gewehre und *dicke* Filzmäntel herum." (von Staden 1983:361). "Sie webte Schafwollteppiche, neuerdings auch *dicke* Westen aus Schafwolle." (Brückner, *Jauche*, 62). However, *thick* and *dick*, if used to refer to spectacle lenses, etc., may also denote the distance between the two opposite surfaces (i.e. *thickness*), which obviously exceeds an *implicit norm*, e.g. G sie trug eine Brille mit ausgesprochen *dicken* Gläsern. – Only E *thick* if used figuratively may refer to human speech, e.g. *a thick French accent* (LNUD: 1019, s.v. *thick*, 4b).

To the adjectives of the lexical field under review may be added E *stout*$_2$ and *squat*$_2$, and G *stark*$_2$: the latter roughly corresponds to *dick*$_2$, e.g. *das Brett ist 20 Millimeter stark* (or *dick*). E *squat* characterizes three-dimensional objects: "Within the *squat* glass-topped tables especially, ropes of beads were tangled together into a solid mass of multicoloured stuff." (Murdoch 1957:60).

The objects referred to by *squat*$_2$ are mostly 'disproportionately short or low and broad' (LNUD: 951a, s.v. *squat* adj.) They seem to violate a certain 'proportional norm' (Leisi 1975:102f.: "Proportionsnorm") and may be *unattractive*. This is clearly true of *squat*$_1$, which refers to the *stature* or build of human beings (see above p. 111). E *stout*$_2$ shows the additional sememe STRENGTH, which may be gathered from the following definition: "Of a material object or substance: So *thick* as to be strong or rigid." (OED: 1048, s.v. *stout* adj., 13). G *stark*$_2$ therefore, seems to be its closest equivalent (see Klappenbach/Steinitz, vol. 5, 1976, s.v. *stark*, 4.).

The fourth and last lexical field examined contains spatial adjectives which describe the *extension* of spaces (either two- or three-dimensional) and of hollow bodies. Two dimensions are involved in phrases like *a broad field*, or *the broad ocean/sea* (see the discussion above, concerning the rivalry of *broad* and *wide*). *Broad* occurring in this context will be termed *broad*$_1$ and its rival *wide* will be termed *wide*$_2$ – the latter being more frequently used than the former. A surface is denoted as *wide*$_2$ in the following sentences: "So she went forward with Marnie, on to the *wide* veranda, (...)." (Lessing, *Martha Quest*, 82). "Why should they notice the speck of a raft on the *wide* sea?" (Lessing, *Briefing*, 26). A *cavity* (or hollow body) is described as *wide* in the following contexts: "(The rope) fell through the tower, through the *wide* louvre above the crossways, (...)." (Golding, *The Spire*, 142). "A more or less *wide* mouth gives rapid access to a chamber of varying capacity". (Beckett 1972:11).

The only counterpart of E *wide*$_2$ is G *weit*$_1$ "Der Wind wehte über die einsamen *weiten* Felder." (von Staden 1983:333). "Am Rande des Steinbruchs stehend, sahen wir in das *weite*, sechzig oder mehr Meter tiefe Loch." (von Staden 1983:336). Discussing G *weit* and its antonym *eng*, Leisi speaks of their subjects as *empty spaces* or hollow bodies which include the *openings* characterized by these adjectives and their English counterparts *wide* and *narrow* (Leisi (1975:88); see (Leisi 1985:55). For *wide* describing *openings*, see above p. 105. Less frequently used are *ample*$_2$ as a synonym of *wide*$_2$: "The house had an *ample*, though rather undistinguished garden." (Christie, *Pricking*, 13). – "there would be *ample* room at the base of the spire."(Golding 1967:124). The difference between *wide* and *ample* seems to be a matter of ± DEGREE: "*Ample* means considerably more than adequate or sufficient" (*Webster's Third*, s.v. *ample*). *Full*$_2$ with its sememe CAVITY, can only have garments as subjects (namely skirts): "Under her *full* skirts were suspended parcels of bread, meat, sausage, even eggs." (Lessing, *Briefing*, 217). E *full*$_2$ must be rendered by G *weit*: "Wieder hockt Maximiliane in ihrem *weiten* blauen Rock am Rande eines Kornfeldes." (Brückner, *Jauche*, 263).

As was already pointed out above adjective lexemes such as E *thick, fat, thick-set, broad, wide*, etc. – G *dick, fett, untersetzt, breit, weit*, etc. – are semantically described in relation to their referents, whose dimensions they denote (see the relational character of spatial adjectives mentioned above on p. 105). The referents may be (± HUMAN) and (± ANIMATE). It is essential to find out whether these adjectives refer to the whole shape or figure of the body or only parts of it. As a consequence the semantic feature (± PART OF) comes into play (see Bierwisch 1965:38ff.). As was already mentioned above (p. 105) E *thick*$_2$ can only refer to body parts, e.g. *a thick neck/waist*, while G *dick*$_1$ refers to both the whole shape of the body and to parts of it, e.g. *ein dicker junger Mann, ein dicker Arm, dicke Lippen*. This is equally true for E *fat*$_1$: "A *fat* jolly woman smiled in response and waved a cheery hand." (Wilson, *Setting*, 135). – "He settled the ungainly body back in his chair, lifted a pencil with that *fat*, protuberant hand." (Lessing, *Martha Quest*, 106). – With animals and parts of their bodies we have: "'You have dined us on *fat* capons and wild boar'" (Wilson, 24). – "But will you (sc. porpoise) come with me, splitting your soft *fat* black shining tail to make legs to walk on (...)?" (Lessing, *Briefing*, 67). On the other hand, E *corpulent, obese, rotund* – G *beleibt, korpulent*, E *thick-set* – G *untersetzt, gedrungen* only refer to the whole shape or stature of persons – see above lexical (sub)fields nos. 1 (+ CIRCUMFERENCE) and 2 (+ STATURE).

On the following pages a word-for-word comparison – in alphabetical order – of the English spatial adjectives belonging to the lexical subfields discussed above with their German equivalents will be undertaken. The essential semantic components and features will be given in order to clarify the differences between the adjectives examined.

ample$_1$: + CIRCUMFERENCE; + MELIORATIVE, + HUMAN, + PART OF

Burgschmidt and Götz (1974:241) quote G *füllig* as an equivalent; both G *stattlich* and *voll* may be considered. However, G *stattlich* has the additional sememe + DIGNITY, which is not part of the meaning of *ample*. The adjective lexemes *voll* and *füllig* lack the connotation + MELIORATIVE. *Voll* refers to both whole persons and to some parts of the body, whereas *ample* only refers to certain parts of the body. – "When he bent to retrieve the books his head threatened for a moment contact with her *ample* breasts." (Wilson, 78). – "*füllige* englische Layds (...) nehmen vom 'Shopping' in Paris mal eben ein Abendkleid für 50 000 Mark mit." (*Brigitte* 21/1984, 91). "Eine Russin machte uns auf, eine *stattliche* Person mit (...) einem *vollen* Mund." (von Staden, 343). – Thus G *füllig* may be regarded as the closest equivalent of E *ample*$_1$ because *füllig* is not subject to any restrictions on the parts of the body it refers to. G *üppig*, as in "Zwei Wandgemälde in der Art der Nazarener eigten eine *üppige* blonde Diana auf der Jagd und eine *üppige* blonde Susanne im Bade." (Herbst 1985:182). – "Ein *üppiger* Busen (...)" (*Brigitte*, 7/1984, 68) differs from E *ample*$_1$ in having the component + ROUNDNESS.

ample$_2$: + SURFACES; + DEGREE, – ANIMATE

Unlike G *weit*$_1$, E *ample* stands for a higher degree of *extension* of surfaces than its synonym *wide*$_1$. Thus, both E *wide*$_1$ and G *weit*$_1$ are not marked for DEGREE. G *ausgedehnt* renders the meaning of E *ample* more closely, as it seems to contain the component DEGREE. However, G *ausgedehnt* belongs to a neighbouring field of adjectives denoting EXTENSION, in which no deviation from an implicit norm is implied. Consequently, in most contexts the equivalent of E *ample*$_2$ will be G *weit*$_1$ (for examples see above p. 114).

broad$_1$: + DISTANCE (BETWEEN TWO OPPOSITE) SIDES; objects being + TWO- and THREE-DIMENSIONAL, + PART OF

Both adjectives – E *broad*$_1$ and G *breit*$_1$ (see the discussion above on p. 112) – have a nearly identical configuration of semantic components, G *breit*$_1$ can show + OPENING for + SIDES. Translators of modern English literature mostly use G *breit*$_1$ for broad$_1$: "She led them up the *broad* staircase" (Christie, *Pricking*, 14) – "die *breite* Treppe hinauf" (l.c., 12). "the *broad* ditch" (Wells, 59) – "den *breiten* Graben". (l.c., 81). "the *broad* sunlit roadway" (Wells, 205). – "Die *breiten* sonnenhellen Straßen." (l.c., 160).

broad$_2$: + SURFACES: – ANIMATE

Broad may be rendered by G *weit*$_1$ or *ausgedehnt*. Both E *broad* and G *weit* share the same semantic components (see the discussion above on p. 110). In addition *weit* shows the component CAVITY, as was pointed out above.

broad$_3$: + STATURE: ± HUMAN, + PART OF

Both the English adjective and its German counterpart *breit*$_2$ have the same semantic components in common (see the discussion on pp. 109 and 111).

burly: + STATURE; + STRENGTH, + HUMAN, + MELIORATIVE

G *stämmig* which roughly corresponds to E *burly* can, unlike the latter, refer to animals and to the parts of the body of human beings: ("eine *stämmige* kleine Frau mit runden Brillengläsern" (*Brigitte* 5/1985, 125). – "O'Brien was a large *burly* man." (Orwell, 13). – ein *stämmiges* Pony, "*Stämmig* und gedrungen, (...) ist der Alpensteinbock." (quoted from Klappenbach and Steinitz 1976, vol. 3542b, s.v. *stämmig*).

buxom: + CIRCUMFERENCE; + MELIORATIVE, + STRENGTH, + HEALTHY LOOK, + HUMAN, + FEMALE, + ADULT

Kastovsky (1982a:148) gives G *drall* as a translation equivalent for E *buxom*. Yet only the class of subjects modified by the two adjectives is identical, having the feature + FEMALE in common. The connotations and additional sememes of G *drall* are clearly different: + CONVEX SURFACE, + PART OF, e.g. *eine kleine dralle Person, dralle Hüften*. In any case, *buxom* is now becoming obsolete – see the almost proverbial *buxom country lass* (see also above p. 108 for a quotation from modern English literature). G *stramm* like *buxom* contains the additional sememes + STRENGTH, + HEALTHY LOOK in its semantic reading. The contexts in which it occurs are less restricted than with *buxom*: *eine stramme Person, ein strammer Bursche* (Klappenbach and Steinitz 1976, vol. 5:3616b, s.v. *stramm*, 3).

G *kräftig*$_2$ could also be regarded as a translation equivalent of E *buxom*, with which it shares the additional sememe + STRENGTH, although the subjects are not restricted to + FEMALE, e.g. *ein kräftiger Mann/Bursche* (Klappenbach and Steinitz 1976, vol. 3:2214b). The semantic feature + HEALTHY LOOK in the lexical reading of E *buxom* is counterbalanced by the fact that bodies and parts of the body characterized by G *kräftig*$_2$ are usually well developed, e.g. *er hat ein kräftiges Kinn*; *das Mädchen ist recht kräftig* (Klappenbach and Steinitz 1976, vol. 3:2214b). This is the starting-point for the use of kräftig as a euphemism for *dick*$_1$ referring to persons who are just *a little fat*. Thus the sentence *Sie ist kräftig* – speaking of a female person would be identical in meaning with *Sie ist ein wenig dick*. (– See also G *kräftig*$_3$ discussed s.v. *stout*$_2$ below.) – If we assign the feature + STATU-

RE to G *kräftig*$_1$ it will become a member of a different lexical field and could be translated either by E *burly* (q.v.) or *sturdy*. "Sie war *groß* und *kräftig*, aber nicht *dick*." (Böll, "Dr. Murke", 25). This example shows that *kräftig* is not used as a euphemistic equivalent for *slightly fat*. "wie dieser war er nicht *groß*, doch *breit* und *kräftig*." (Feuchtwanger, 130). – "Ein zarter junger Mann. (...). Nur seine Arme waren *kräftiger* als er." (Welser. 279).

chubby: + CIRCUMFERENCE: – DEGREE; – FORMAL, + HEALTHY LOOK, + ROUNDNESS, ± HUMAN, ± PART OF
G *rundlich* and *mollig* as lexical equivalents also show – DEGREE (i.e. a smaler deviation from the norm) and + ROUNDNESS in their semantic reading. Unlike *roundlich*, its synonym *mollig* is marked + INFORMAL. However, they cannot have animals as their subjects, and *rundlich* can only characterize certain parts of the body. Still, *roundlich* is closer in meaning to *chubby*, which can refer to parts of the anatomy like *face* and *cheeks* (and, of course, to whole persons). "Deborah Spungen (...) had to turn away from any baby in the street because its *chubby* arms reminded her of her infant Nancy's". (*Company* 5/1984, 15). – "that fatuous and *chubby* young person seated on the arm of his chair was myself." (Sommerville and Ross, 68). – "Inzwischen field meine Tante zusammen: Ihr *rundliches* Gesicht wurde hart und eckig." (Boll, "Weihnachtszeit", 72). – "bei unserem *molligen* Fotomodel" (*Brigitte* 6/1984, 9). E *chubby* is often complimentary, so that an optional feature + MELIORATIVE could be added.

chunky: + STATURE: + SMALLNESS, + STRENGTH, ± HUMAN, ± PART OF
G *stämmig* occurs in the same contexts as *chunky*, but it does not have the component SMALLNESS. G *untersetzt* lacks the component STRENGTH and it can only be used with humans. Depending on the overall context, either STRENGTH (if *chunky* is rendered by *stämmig*) or SMALLNESS (if *untersetzt* is selected) we emphasited. "she (...) pulled to his feet from a crouching position (...) a short *chunky* young man." (Wilson, 114). – "der *kräftige*, etwas *untersetzte* Par stützte den runden Kopf in die Hände." (Feuchtwanger, 51). – G *stämmig* is exemplified s.v. *burly*.

corpulent: + CIRCUMFERENCE; – ATTRATIVENESS, + HUMAN
G *korpulent* contains the additional sememe CLUMSINESS and possesses a euphemistic connotation. G *beleibt* does not show this additional sememe but it does have the connotation + FORMAL. Furthermore the class of subjects modified by the German adjectives is more restricted than that of E *corpulent*. Consequently, there is no direct equivalent in German for the English adjective. Thus the referents of G *korpulent* must have the semantic

feature + ADULT: ein *korpulenter*, aber noch rüstiger Herr, E *corpulent*, which could be paraphrased "showing a *bulky* excess of flesh" clearly possesses a pejorative connotation, which is expressed by the component – ATTRACTIVENESS.

dumpy: + STATURE; – FORMAL, – ATTRACTIVENESS, + HUMAN

G *untersetzt* und *rundlich* only reflect the meaning of E *dumpy* very imperfectly. – "a *dumpy* housewife wistfully unfolding an exotic an negligée from its box;" (*Company* 5/1984, 9). Neither connotation nor additional sememe of *dumpy* (– FORMAL, – ATTRACTIVE) can be found in the lexical reading of G *untersetzt* (see above s.v. *chunky*). G *rundlich* is negatively marked for STATURE, as it belongs to the subfield of adjectives marked + CIRCUMFERENCE. Thus it cannot be regarded as a lexical equivalent of E *dumpy*.

fat$_1$: + CIRUMFERENCE; ± HUMAN, ± PART OF, optional features: + DEGREE, + PEJORATIVE

G *dick*$_1$, *plump, korpulent, fett, feist* can be considered translation equivalents for E *fat*. In fact, *fett* and *feist* never have a pejorative connotation when referring to animals and when translating E *fat* with reference to the same class of subjects. E *fat*$_1$ shows the features + DEGREE and + PEJORATIVE in certain contexts and refers to humans. In these cases both *fett* and *feist* are fairly close equivalents. – "'Husband was a *fat*, rather lazy man.'" (Christie, *Sleeping Murder*, 50). – "'Ihr Mann war faul und *fett*'" (l.c., 43). One of the persons in Greene's novel *Our Man in Havana* is referred to as *the fat woman*, which appears as *fette Frau* in the German edition (pp. 105-108). This is certainly inadequate, as the context does not justify either + DEGREE (being *excessively fat*) or + PEJORATIVE. *Fat woman* occurring repeatedly in Capote's *Breakfast at Tiffany's* (pp. 228, 232, 236) is correctly translated as G *fettes Weib* (l.c., 79, 83, 88), as this expression is used as a metonymy for death: "'No fooling, *the fat woman* almost had me'" (Capote, *Tiffany's*, 228) – "'*das fette Weib* hätte mich beinahe gekriegt.'" (l.c., 79). In most cases, however, E *fat*$_1$ does not have any such optional features as those quoted above and is consequently translated by G *dick*$_1$, as the following quotations show: "Audience much amused at the shots of a great huge *fat* man" (Orwell, 11). – "von einem großen, *dicken* Mann" (l.c., 11). – "'He was a good-looking man in his way. Run into *fat* a bit though.'" (Christie, *Pricking*, 80). – "'Aber ein bißchen zu *dick* war er.'" (l.c., 74). – The last quotations indicate that the quality expressed by *fat* and *dick* respectively is not regarded as an advantage (or as complimentary).

G *plump* as a translation equivalent for E *fat*$_1$, is out of the question, because G *plump* contains too many divergent semantic components in its lexical reading (see the discussion of E *plump* as compared to G *plump* below). G *korpulent* is not a very close equivalent either, as it has a euphemistic connotation and shows the component + CLUMSINESS (see E *corpulent* as compared to G *korpulent* above).

Translating E *fat*$_1$ into German, both *fett* and *feist* make most sense, provided that the components + DEGREE and + PEJORATIVE are there. In all other cases G *dick*$_1$ is obviously the best translation equivalent (see also above p. 111).

fat$_2$: + DISTANCE (between two opposite) SIDES/+ DIAMETER;
−ANIMATE, + THREE-DIMENSIONAL

E *fat*$_1$ is best rendered by G *dick*$_2$. In fact, the two adjectives show the same inherent semantic components, as the following quotation reveals: "The handpiece resembled a long *fat* pencil." (*Reader's Digest* 1/1984, 255). – "Der Handapparat sah aus wie ein langer, *dicker* Bleistift." (*Das Beste aus "Reader's Digest"* 3/1984, 220). From a contextual point of view, however, E *fat*$_2$ is more restricted than G *dick*$_2$ (see above p. 111).

fleshy: + CIRCUMFERENCE; + HUMAN, + PART OF

G *fleischig*, which is etymologically related to E *fleshy*, corresponds fairly closely to the latter. However, unlike E *fleshy* the German adjective shows the semantic component + SOFTNESS. We do not think that a component + SUBSTANCE in the case of *fleshy*/*fleischig* (i.e. *flesh*) and *fat*$_1$/*fett* (i.e. *fat* n.) should be postulated. G *fett* cannot be regarded as an equivalent for E *fleshy*, because it contains the features + DEGREE and + PEJORATIVE. *Webster's New Dictionary of Synonyms* states: "when a derogatory connotation is intended *fat* is usually preferred (WNDS: 342a, s.v. *fleshy*). *Fleshy* characterizes both parts of the body and whole persons: "Mrs. Gunn's pale and *fleshy* face was glistening with sweat." (Lessing, *Martha Quest*, 158). – "'And Lord Marchmain, well, a little *fleshy* perhaps, but very handsome" (Waugh, 54). – "Aus dem *fleischigen* Gesicht schauten ruhige, wägende, etwas schlärige Augen." (Feuchtwanger, 16). The adjective may also refer to whole persons.

full$_1$: + CIRCUMFERENCE: + MELIORATIVE/or EUPHEMISTIC,

+ ROUNDNESS, + HUMAN, + PART OF

The English adjective may have G *voll, rund, rundlich* as its cunterparts. G *voll* lacks the semantic component + ROUNDNESS and is negatively marked for DEGREE. G *rund* does not have any connotations, while *rundlich* may be EUPHEMISTIC and is marked – DEGREE. "this shop sells dresses for the *fuller* figure." (DCE, s.v. *full*). – "Flattering disguise for a *thick* waist, *full* bust or flat derrière."(*Woman's Day* 13/11/1984, 141). – "Nun (...) traten die starken, entschiedenen Züge noch deutlicher ins Licht, die harten Backenknochen, (...), die *vollen*, fröhlichen Lippen." (Feuchtwanger, 21). – "Über Jahrzehnte wird sie diesen festen *runden* Körper behalten." (Brückner, *Jauche*, 113). "Schwanger, *dick*, *rund* und kuhäugig will ich werden.'" (Grass, 31). – G *rundlich* occurs only with nouns referring to certain parts of the anatomy: *ein rundliches Gesicht/Kinn*. It can also denote the whole figure of both adults and children: "neben, über und unter dem *rundlichen* Josef-Heinrich" (Walser, 307). "(...) ein kleines *rundliches* Mädchen mit einer großen weißen Schleife im Haar." (Brückner, *Jauche*, 66).

full$_2$: + THREE-DIMENSIONAL, + CAVITY, -ANIMATE

G *weit*$_2$ is its closest equivalent, although the latter may describe all sorts of cavities (see below *wide*$_2$), while E *full*$_2$ only co-occurs with the names for certain garments, e.g. *under her full skirts*; *with a very full skirt* (restricted collocation). – *ein weiter Rock*; *eine weite Bluse* – "Der stand auf seinen Stock gestützt, (...) die erbärmliche Gestalt verbergend unter *weiten* Hüllen." (Feuchtwanger, 42). – see above on p. 110 and 114: E *full*/G *weit*.

obese: + CIRCUMFERENCE; + DEGREE, + PEJORATIVE, + FORMAL, – ATTRACTIVENESS, + HUMAN

G *fettleibig* und *beleibt* correspond more or less closely to E *obese*. The subjects of the three adjectives must have the feature + HUMAN. G *fettleibig* carries no pejorative connotation, apart from this it is the closest equivalent of E *obese*. G *beleibt*, on the other hand, does not possess the components + DEGREE, + PEJORATIVE, – ATTRACTIVENESS. – "Ob mir diese braunen Striemen bleiben würden, die in der Haut *beleibter* Frauen für alle Zeit als geschmacklose Intarsien zurückbleiben (...)?" (Walser, 26). – E *obese* is defined as *exceedingly fat* or *exceedingly corpulent* in some dictionaries (see above s.v. *corpulent* and *fat*$_1$). It may denote a pathological state of *fatness* which is also true of G *fettleibig* (see *Webster's Third*, s.v. *fat* adj.).

plump: + CIRCUMFERENCE: + MELIORATIVE, + ROUNDNESS; ± HUMAN, ± PART OF

E *plump* can by no means be translated as G *plump*, which shows almost contradictory semantic components: + PEJORATIVE, + DEFORMITY. G *prall*, *drall*, *mollig*, *rundlich* and *pummelig* are elegible candidates. Both *drall* and *prall* should be excluded because they have no connotations and, unlike E *plump*, contain the additional sememes + CONVEX SURFACE, + WELL-FILLED (only *prall*). Like E *buxom* (see above) G *drall* can only have female referents. G *mollig* and *rundlich* share the component + ROUNDNESS with E *plump*, yet they are not complimentary (i.e. – MELIORATIVE). *Mollig* is stylistically marked (– FORMAL) and shows the component (+ SOFTNESS)

In some contexts E *plump* may be translated by G *pummelig*: "There were seven people in the picture, (...) and all chlidren, except for the man himself, who had his arm around the waist of a *plump* blond little girl." (Capote, *Breakfast at Tiffany's*, 206). – "um die Taille eines *pummeligen* blonden kleinen Mädchens." (l.c., 54). According to *Webster's New Dictionary of Synonyms*, s.v. *fleshy*, *plump* "implies a pleasing fullness of figure" (WNDS: 342b). – "he was not *fat* or *plump*, but the flesh lay close and even over the small bones." (Lessing, *Martha Quest*, 203). – None of the German adjectives quoted above seems to correspond closely enough to E *plump*.

G *vollschlank*, which has a euphemistic connotation (see *Duden*, s.v. *dick*) and thus comes close to + MELIORATIVE, a component to be found in the semantic description of E *plump*. Like E *buxom* (q.v.) the German adjective refers only to adult female persons: "Das neusprachliche Bemühen der Werbung (...), das heute zwar (...) aus einer *dicken* Kundin eine *vollschlanke* (...) machen kann," (Schwenger, 77). – "Weil also Lambert ein solcher Kerl ist und auch noch einer, der manchmal (...) zwei *vollschlanke* Damen auf seine Arme nimmt" (Walser, 414).

portly: + CIRCUMFERENCE; + DIGNITY, + HUMAN, + ADULT

Neither G *beleibt* nor *wohlbeleibt* have the semantic component + DIGNITY, which is, however, found in the lexical reading of G *stattlich*. The latter belongs to a different lexical field, as its meaning does not contain any indication of *fatness*. The former German adjectives are marked + FORMAL. – "A *portly* middle-aged man was standing wedged between me and the banisters." (Wain, 65). "Albert (...) removed his now *portly* form from the room." (Christie, *Pricking*, 44). The DCE, s.v. *portly*, states that it has a euphemistic or humorous connotation, often referring to older persons. Thus, the corresponding feature should be added.

rotund: + CIRCUMFERENCE: + FORMAL, + ROUNDNESS, + SMALLNESS, + HUMAN

G *rundlich* and *rund* can hardly be regarded as close equivalents of E *rotund*. All three adjectives denote roundness of human bodies due to fat. *Rotund* refers to whole persons, while the two German adjectives can also refer to parts of the body. G *rundlich* and *rund* do not show the component + SMALLNESS.

round: + CIRCUMFERENCE: + ROUNDNESS, ± HUMAN, ± PART OF

Unlike E *round*, which is mostly translated by G *rund* in literature, the latter can never refer to animals. "Baby was like a wheel, *round*, rolling", (Capote, *House of Flowers*, 132). – "Baby war *rund* und kam angerollt wie ein

Rad". (l.c., 91). "His *round* rubicund face beamed with pleasure." (Christie, *Sleeping Murder*, 170). – "Sein *rundes* Gesicht." (l.c., 156). G *rundlich* may also render E *round*: "Mrs. Mountford, née Pagett, was short and *round* and dark-haired" (Christie, *Sleeping Murder*, 113). – "war *untersetzt* und *rundlich*." (l.c., 102). The last translation contains two adjectives, which indicates that *stature* and *circumference* of the person described fall short of an *implicit norm*, while the English original has only one such adjective.

square: + STATURE: + ANGULARITY OF OUTLINE, + HUMAN, ± PART OF

G *breit*, *stämmig* und *vierschrötig* may translate E *square* (see above p. 111).

Like *square* G *vierschrötig* shows the additional sememe + ANGULARITY OF OUTLINE. However, it has additional components which are not part of the lexical reading of E *square*, e.g. + STRENGTH, + PEJORATIVE. G *stämmig* differs from *square* in showing the semantic component + STRENGTH. It can also describe the shape of animals, e.g. *eine kleines stämmiges Pony* (see above s.v. *burly* and *chunky*). Both whole persons and parts of the body may be termed *square*: "He must have been an imposing figure in the uniform, with (...) his powerful *square* figure." (*Reader's Digest* 1/1984, 150). "in a *square*, burnt, determined face were blue and direct eyes." (Lessing, *Martha Quest*, 166). – G *breit* is rather unspecific as a translation equivalent for E *square* (see *breit* used in this sense to render E *broad*$_3$).

squat$_1$: + STATURE: + SMALLNESS, – ATTRACTIVENESS, ± HUMAN, + PART OF

G *gedrungen* and *untersetzt* lack the additional sememe – ATTRACTIVENESS. Furthermore, they only refer to whole persons. If *squat* denotes the shape of animals and parts of the body G *stämmig* should be selected. This adjective, however, is not marked for SMALLNESS or ATTRACTIVENESS like *squat*$_1$. The persons called *squat* are mostly disproportionately small, which makes them unattractive. This is illustrated by a quotation from Iris Murdoch, who describes the result of a boy's attempt to draw a *slim* woman: "He had produced a *squat* figure, the drapery drawn tight about the body, the breasts crudely exaggerated." (Murdoch, *The Sandcastle*, 156).

squat$_2$: + DISTANCE SIDES, + THREE-DIMENSIONAL, – ATTRACTIVENESS, – ANIMATE, + PART OF

This variant of E *squat* has no precise German equivalent (for examples see p. 113 and above). G *gedrungen* co-occurring with subjects (– ANIMATE) may be the closest possible equivalent. G *zusammengedrückt* only indicates the disproportion between *length* and *breadth*. It cannot reflect the full meaning of *squat*$_2$.

stocky: + STATURE: + SMALLNESS, + STRENGTH, ± HUMAN

G *stämmig* lacks the additional sememe + SMALLNESS, G *untersetzt* lacks the component + STRENGTH. Moreover it cannot co-occur with subjects (− HUMAN, i.e. animals). "he was a *stocky*, middle-aged, genial Glasgow-Irishman" – (Waugh, 326). See the discussion of *stocky* and its equivalent G *stämmig* above on p. 108 (with additional quotations).

stout$_1$: +CIRCUMFERENCE: + STATURE; + EUPHEMISTIC, + HUMAN

Judging from the equivalents G *beleibt, korpulent, dick* (+ FATTY TISSUE) and G *gedrungen, untersetzt* (+ STATURE), which are found in the dictionaries, E *stout* seems to belong to both lexical fields. However, quotations from modern English literature merely illustrate the component + STATURE: "a *stout* member of the tourist police" (Greene, 22) – "den *stämmigen* Angehörigen der Fremdenpolizei". (l.c., 23). "a *stout*, ruddy, middle-aged man, well dressed" (Wells, 166). – "ein *stämmiger*, blühend aussehender gutgekleideter Mann in mittleren Jahren." (l.c., 129). Unlike *stout* the German adjective shows the additional component + STRENGTH and can refer to animals. – G *gedrungen* and *untersetzt* are less apt translations of E *stout* because of their semantic component + SMALLNESS. G *korpulent* and *beleibt* are rather good translation equivalents, yet they have an additional component + CLUMSINESS and belong to the formal register. Like E *stout*$_1$ G *korpulent* has a euphemistic connotation. Their contexts are identical. – G *dick*$_1$ also represents a less precise equivalent. G *stark*$_1$ would reflect the meaning of the English adjective better as it also has the component + EUPHEMISTIC, e.g. *sie ist stark geworden* instead of saying *sie ist dick geworden*. "eine *stämmige* kleine Frau mit runden Brillengläsern und einem jener kleingemusterten Jersey-Jackenkleider, die offenbar in Amerika genau wie bei uns eigens hergestellt werden, die '*starke* Dame' unnötig zu entstellen." (*Brigitte*, 5/1985, 125).

As there is no German adjective which contains both + FATTY TISSUE and STATURE in its semantic description, all the proposed translation equivalents for E *stout*$_1$ are rather inexact.

stout$_2$: + DISTANCE (BETWEEN TWO OPPOSITE) SURFACES or SIDES/+ DIAMETER, + STRENGTH; objects being − ANIMATE, + THREE-DIMENSIONAL, + PART OF

G *stark*$_2$ is the most suitable equivalent, it has the additional semantic component + DEGREE (see also above p. 113). The OED gives the following definition: "Of a material object: So *thick* as to be strong or rigid" (OED, s.v. *stout*, 13). – "This almanack (...) is pasted on very *stout* cardboard (1981)" and "Strips of *stout* paper (1907)" (quoted from OED, s.v.

stout, 13). – Because of its thickness the object described as *stout* is "too solid to break" (DCE, s.v. *stout*". – "He cut a *stout* stick to help him walk" (DCE, s.v. *stout*". – see also above p. 113, lexical field no. 3: E *stout*$_2$ – G *stark*$_2$.

stubby: + STATURE: + SMALLNESS, ± HUMAN, + PART OF G *untersetzt* can only modify subjects (+ HUMAN). If animals or parts of the body are referred to G *stämmig* must be selected. The latter contains the additional component + STRENGTH, as we saw above s.v. *square* and *stout*$_1$.

thick$_1$: + DISTANCE SIDES: + DIAMETER, – ANIMATE, + THREE-DIMENSIONAL, + PART-OF

E *thick*$_1$ and *dick*$_2$ have identical semantic components (see above p. 000), as is confirmed by the quotations from modern English and German literature: "Tuppence ate bacon and eggs and had slices of *thick* bread and butter." (Christie, *Pricking*, 76). – "*dicke* Scheiben Butterbrot." (l.c., 70). "there exists a *thick* layer of warmer surface water" (*Reader's Digest* 1/1984, 116) – "eine *dicke* Schicht wärmeren Oberflächenwassers". (*Das Beste aus "Reader's Digest*, 1/1984, 62). "In came Madame Sapphia Spanella, trailed by a pair of civilian-clothed detectives, one of them a lady with *thick* yellow braids roped round her head." (Capote, *Tiffany's*, 225). – "eine Frau mit *dicken*, gelbblonden, um den Kopf geschlungenen Zöpfen." (l.c., 75). – G *stark*$_2$ is less suited to translate E *thick*$_1$ because it shows the components + STRENGTH and + DEGREE (see above s.v. *stout*$_2$).

thick$_2$: + CIRCUMFERENCE; + PART OF (HUMAN)
G *dick*$_1$ is contextually different from E *thick*$_2$, because it can refer to whole human beings. Consequently, it occurs more frequently than *thick*$_2$ being a kind of hyperonym and corresponding more closely to E *fat*$_2$ (q.v.) "she (...) took no notice that his *thick* lips were nuzzling the nape of her neck." (Capote, *Tiffany's*, 169). – "seine *dicken* Lippen." (l.c., 13). – See also the discussion of *thick*$_2$ within its lexical field (p. 107f.).

thick-set: + STATURE; + HUMAN
G *untersetzt* has the additional component + SMALLNESS (see above s.v. *chunky*). In addition to + STRENGTH G *stämmig* differs contextually from E *thick-set* (see above p. 111 for a short description of the respective lexical field). "a man of medium height, rather *thick-set* with thin brown hair." (*The Times*, Sept. 27, 1984). "Robert was dark and *thick-set*." (Wain, 14). – "Vielleicht braucht er so viele Frauen, weil er klein ist, widderhaft *untersetzt*." (Walser, 307). "Der Jubel galt besonders dem István Mikó, dem etwas *untersetzten*, aber doch temperamentvollen Darsteller des Nero." (WZ, Oct. 27, 1984).

wide$_1$: + DISTANCE SIDES: + OPENING, + TWO- and THREE-DIMENSIONAL; + PART OF (HUMAN); objects being −ANIMATE, +TWO− and THREE-DIMENSIONAL, + PART OF
G *breit*$_1$ possesses the same semantic components (see above p. 112 for a short semantic description of E *wide*$_1$ and G *breit*$_1$). This assumption is confirmed by the following quotations: "his *wide* Panama hat" (Mitchell, 250). – "der *breite* Panamahut" (see Wandruszka 1969:59). "there was only one road (...) it was not *wide* enough (...) A new *wide* road was being finished." (Hemingway, 23). – "nur eine Straße (...) sie war nicht *breit* genug (...) Eine neue *breite* Straße wurde fertiggestellt." (l.c., see Wandruszka 1969:59). "tall delicate Negro man (...) displaying in his hands an odd wood sculpture, an elongated carving of a head, a girl's, (...) her mouth *wide*, overdrawn, not unlike clown-lips" (Capote, *Tiffany's*, 164). – "ihr Mund *breit*, überbetont, den Lippen eines Clowns nicht unähnlich." (l.c., 8).

wide$_2$: + SURFACES: + CAVITIES; objects being – ANIMATE
Both E *wide*$_1$ and G *weit*$_2$ show the same semantic components in their lexical reading (see above p. 114 for a short description of the respective lexical field).

Our study of English and German spatial adjectives has proved the existence of four subfields:

1) adjectives like E *fat*$_1$, *thick*$_2$ – G *dick*$_1$, *fett*, which denote the shape of human beings and animals whose bodies and/or anatomical arts pare covered with so much *fatty tissue*, that it gives them a *circumference* distinctly above the norm. This constitutes + CIRCUMFERENCE as a semantic component which differentiates the lexical field in question from the adjacent fields. Consequently, + CIRCUMFERENCE may be said to stand at the top of a hierarchy of semantic components. It was pointed out above that CIRCUMFERENCE can be broken down into two horizontal dimensions (i.e. mathematically speaking, diameters which make up the horizontal extension of the entities described). The vertical dimension comes in through the proportional norm (i.e. the proportion between a person's *height* and his/her *horizontal extension*), which is clearly violated at the top end of the scale.

2) Adjectives like E *thick-set*, *burly*, *stout*$_1$, *squat* – G *untersetzt*, *gedrungen*, *kräftig*$_1$, *stämmig* share the semantic component + STATURE (i.e. build). The lexical field in question may be negatively defined by the absence of the semantic marker + CIRCUMFERENCE. Yet some adjective lexemes like E *stout*$_1$ – G *stark*$_1$ and *kräftig*$_1$ seem to be marked both for + CIRCUMFERENCE (if used as euphemisms for *fat*$_1$ and *dick*$_1$ respectively) and + STATURE. It would, of course, be possible to postulate different meanings for one and the same lexeme, as we have repeatedly done.

3) Adjectives like *broad*$_1$, *wide*$_1$ – G *breit*$_1$, *weit*$_1$ give the distance between two opposite sides or surfaces or only the diameter of round objects as the main dimension of the entities referred to. Unlike the first two lexical fields, which share the contextual feature ± HUMAN, the relevant contextual feature of the subjects modified by adjectives of the third and fourth lexical subfield is – ANIMATE. This has become obvious from the examples and quotations given above.

4) Adjectives like E *broad*$_1$, *wide*$_2$, *ample*$_2$ – G *weit*$_2$ describe the extension of spaces or surfaces, i.e. of entities having three or two dimensions, and of hollow bodies. Examples and quotations were given above.

Some of the adjectives discussed showed additional sememes which are clearly non-dimensional, e.g. + SMALLNESS, + STRENGTH, – ATTRACTIVENESS; + CLUMSINESS, + HEALTHY LOOK. They are to be derived from the qualities of the objects referred to. The connotational meanings of the adjective lexemes under scrutiny are partly stylistic, e.g. ± FORMAL, partly dependent on the speaker's attitude towards the person or object which is being characterized by a spatial adjective.

In fact, the number of adjectives belonging to fields no. 1 (+ CIRCUMFERENCE) and no. 2 (+ STATURE) is much greater than that of the members of fields nos. 3 and 4. English has seven adjective lexemes altogether which occur in nine variants of meaning, while German has four different adjectives occurring in five variants. Obviously, the interest of the language community in describing the shape and build of human beings and animals seems to be greater than the interest in a detailed description of inanimate things. It comes as no surprise that English has a much greater number of adjectives for the first two semantic fields than German. However, we have excluded the following adjective lexemes: E *beefy, brawny, meaty, muscular, paunchy, podgy/pudgy, pursy, roly-poly, squab, stalwart, strapping, tubby* – G *bullig, dicklich, massig, muskulös, ungeschlacht, voluminös, wohlgenährt*. They have a rather low frequency and are rarely found in modern literature. Nor were E *spacious* and *stumpy* (a variant of *stubby*) taken into consideration.

There is no archilexeme for the four lexical subfields examined. E *fat*$_1$ and G *dick*$_1$ can possibly be regarded as archilexemes of subfield on. The word-for-word comparison conducted above (pp. 115ff.) has yielded many differences in the semantic structure of individual items. However, there are many similarities between the two languages which may be due to the fact that they are – historically speaking – fairly closely related.

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ON THE CONTRASTIVE PHONOLOGY OF THE STRESSED VOWELS IN ENGLISH AND BULGARIAN

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1. INTRODUCTORY NOTES

Although some aspects of the contrastive phonology and phonetics of English and Bulgarian have already been considered at varying length in a number of publications (e.g. in Mincoff (1973), Danchev (1975), (1982), Despotova (1978)), no comprehensive treatment has appeared yet. The purpose of this paper is to (1) offer an overall scheme of the basic correspondences, (2) illustrate a somewhat more specific application of contrastive phonological analysis, and (3) examine briefly some of the methodological and theoretical issues. The presentation is intended to be suggestive rather than exhaustive.

A survey of the literature reveals that almost all the major contrastive phonological studies are pedagogically oriented. Although this very important aspect has been considered here, the original aim was to set up a frame of reference for the cross-language rendition (in this case English → Bulgarian) of proper names, an issue of considerable communicative importance in countries such as Bulgaria, which use a non-Latin alphabet. There arise various difficulties, reflected, for example, in the frequent presence in the receptor language of several different spelling and pronunciation variants of a given source language name (e.g., *A*nthony may appear as *А*нтъни or *Е*нтъни, H*u*nter as Х*ъ*нтър or Х*а*нтър, a.o. (For more examples and details cf. Danchev 1982)), which often creates public confusion and irritation. As the large majority of authors who have examined the general theoretical and methodological premises of contrastive phonology have worked with Latin script languages, this particular aspect of applied contrastive phonology has been practically overlooked so far.

The present-day proliferation of phonological models has not made the task of the contrastivist linguist any easier (for a survey of some of the problems cf., e.g., Wardhaugh (1967), Awedyk (1979), Eliasson (1984a)) than it was before the advent of generative phonology. The abstractness issue and the ensuing drift towards more concrete analyses have not contributed very much towards the establishment of a generative contrastive phonology as outlined, for instance, in Fisiak (1976) (and some of the references therein). In fact, in 1984 the impact of generative phonology on contrastive phonology was referred to as "strikingly faint" (Eliasson 1984b:12) and the situation does not seem to have changed very drastically since then. The prevailing orientation of applied contrastive phonological studies has indeed been towards surface phenomena (e.g. in Fisiak et al (1978), Chitoran et al (1984), Basbøll & Wagner (1985)). Given the fact that "surface structure is the decisive factor in the treatment of loanwords" (Fischer-Jørgensen 1979:246) – and foreign names being a variety of loanwords – a more structuralist approach has been adopted here too. As in some other relatively recent publications in the area of contrastive phonology, this does not necessarily imply a general return to structuralist methodology and theoretical principles together with a wholesale rejection of generative grammar. A synthesis of all the productive elements in the various approaches should rather be aimed at (cf., e.g., Bugarski (1982), Grzybowski (1987)).

In any case, irrespective of their theoretical persuasions, most authors agree that the establishment of phonological equivalence remains one of the crucial issues of contrastive phonology. Indeed, the quest for a reliable tertium comparationis here has proved more difficult than in contrastive grammar and lexicology. This is understandable, of course, given the relatively limited number of distinctive features that can be used in phonology as compared to the practically unlimited number of semantic features that can be postulated in general and ad hoc. As a matter of fact, the crudeness of the I. P. A. notation for various distinctive features and the shortcomings of the latter have been criticized repeatedly (cf., e.g. Kohler (1971), Grucza (1976), Lehtonen (1977), Suomi (1983)).

Of the four criteria for establishing equivalence, summed up by Lehtonen (1977), namely, (1) cogency of similar letters in spelling, (2) similarity of phonetic descriptions and conventions of transcription, (3) use of phonological criteria, (4) perceptual similarity, the present approach is based on a combination of the latter three.

The notion of 'phonological translation' (Catford 1965), adopted by a number of authors (e.g. Fisiak 1975) still provides a convenient starting point for certain types of contrastive analysis. It can actually be regarded as an alternative formulation of interlingual substitutions (in terms of Weinreich (1953/1974) and cf. here also Wardhaugh (1967)) and obviously ties in with the idea of "perceptual substitutions as a natural criterion of equivalence" (Lehtonen 1977:38). This makes it possible to relate contrastive phonological analysis to a broader framework of crosslanguage analysis which includes contact data (cf. Wardhaugh (1967), Nemser & Slama-Cazacu (1970), and also Danchev & Grozeva (1985)). In cases where more than one equivalent is available the choice will depend on phonological and sometimes on other criteria as well (cf. Danchev 1982).

As "the notion of phonemes based on the specifics of any language has been of little value in contrasting languages" (Di Pietro (1978:139), and cf. also Kopczyński (1973)), the use of phonological criteria, or the "phonemic system approach" (Barbour 1984:125) is applied here above all to the similarity of oppositions, not necessarily to complete identity. More specifically, it will be seen that some contrasts are more important than others in both intra- and cross-language terms.

The notion of common phonetic space, which has provided the common frame of reference in this paper, has also given rise to controversial arguments. Whereas certain authors proceed from a universal phonetic space based on the D. Jones cardinal vowels chart (e.g. Chitoran et al 1984), others (e.g. Butcher (1982) reject it in favour of purely phonetic criteria. As a third option a universal classification based on the five most common and basic vowels in the languages of the world – /i/, /e/, /a/, /u/, /o/ (this in terms of Skalička (1961) and statistically motivated also in Maddieson (1984)), to which stressed /ə/ has been added, has been accepted here. The overall number of phonetic spaces used as a common frame of reference here is thus six. For the sake of simplicity the phonetic space will be considered as two-dimensional and will be defined by the articulatory features "high", "low", "mid", "central", "front", "back". So as to keep open the possibility for marking differences of degrees, the features are not treated as binary in the strict sense.

Since the system outlined above comes closer to Bulgarian than to English it could be claimed that one cardinal vowel chart, biased towards one or two particular languages (in the case of the traditional chart presumably towards English and/or French), has been merely replaced by another chart, biased towards another language (in this case Bulgarian). However, the fact that Bulgarian happens to be typologically closer to the universal set can also be regarded as a convenient coincidence, which does not invalidate the basic approach in terms of universal properties. It must be admitted, of course, that one type of idealization has been replaced by another, as the 'universal' vowels naturally do not have acoustic correlates rigorously definable in terms of phonic substance.[1] In fact, what we have here can be referred to as 'vowel prototypes' to which the vowels in the respective two languages exhibit varying degrees of correspondence or matching, extending over a continuum (cf. Krzeszowski (1986) and the authors mentioned there).

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[1] It should be possible, theoretically at least, to derive average formant values that could be considered as prototypical by comparing the relevant acoustic data for a statistically representative number of languages (starting perhaps with the 317 sample languages included in the UCLA Phonological Segment Inventory Database – for details cf. Maddieson 1984). The range of such data available today still seems rather limited.

Returning to the question of what to compare worth noting is Gussmann's formulation of the "... basic paradox of contrastive phonological analysis: whatever can be compared in strict, unambiguous terms relates to phonic substance and is of little significance, while the crucial formal aspects of structure can only be approached in an indirect, approximative and partly impressionistic fashion." (Gussmann 1984:34). But if on purely theoretical grounds one might hesitate between one approach or another, in this particular case the question of whether to use a deductive or a data-based approach was settled in advance by the very nature of the task in hand and the existence of a vast corpus of empirical evidence.

As mentioned earlier in this paper, instead of common nouns and words (as is the usual practice), proper nouns have been used here. This has made it possible to avoid artificial contrasts (e.g. of the *thigh – thy* and *wreath – wreathe* type), i.e., the pairing of words that will hardly ever occur in the same context. Being on the periphery of the structure of language, by their very nature proper nouns are eminently qualified for throwing into relief the importance of surface phonological contrasts, which are often the *only* means of distinguishing communicatively one name from another. Though not novel (the use of proper nouns for phonological analysis is found, e.g., in Jakobson & Halle (1956)), such evidence is still used quite rarely in synchronic contrastive studies (although it is widely used in historical studies).

The names used in this paper are part of a corpus of about ten thousand English (taken in the broad sense, including British, American, Australian, Scottish, etc.) personal, place and other names contained in Danchev (1982) together with their Bulgarian renditions. Only the names that have been transcribed (phonetically and/or phonologically) have been taken into account. All the names whose Bulgarian spelling is traditional (usually bearing the marks of graphic influence – transliteration – of the source language or the mediation of another language) have been left out of consideration.

What has actually been done in this paper is to explicate on a somewhat more theoretical plane the decisions already taken by hundreds of informants (mostly competent bilingual English-Bulgarian translators and interpreters), who have rendered English names with Cyrillic letters in Bulgarian (as summed up in Danche (1982:40)). This is therefore a post hoc theoretical rationalization of a system already arrived at and tested on more pragmatic grounds. Some kind of a contrastive analysis, albeit rudimentary, underlies most of the empirical decisions mentioned above.

As indicated at the beginning, the highly important question of whether the system of correspondences used for the Bulgarian transcription of English names can be used for pedagogical purposes as well, will also be considered. The stressed vowels of the two languages will therefore be contrasted in terms of the relevant cross-language substitutions and the phonological contrasts involved. These findings are checked against the phonic substance data in the appendix[2], after which the vowels belonging to the same phonetic space are specified together with the main differences between them.

2. ANALYSIS

2.0. The comparison is based on the standard varieties of the two languages. The R. P. variety of British English (which is usually taught in Bulgaria) as described, for example, in Gimson 1983, has been used, with occasional brief references to General American English.

The vocalic system of Standard Bulgarian is relatively simple. It has no distinctions based on phonological quantity[3] and in addition to the five 'basic' vowels already referred to it also has a stressed mid central /ə̆/ vowel. Unlike the short vowels of English, the Bulgarian stressed vowels occur word finally too. The system can be presented in the following manner:

/i/ /u/
/e/ /ə/ /o/
/a/

2.1. E /I/ → B /i/
↗
E /i:/ → B /ij/

As indicated above, the distinction between /I/ and /i:/ in English is often reduced to /i/ in Bulgarian, the latter vowel being unmarked in respect of quantity.

The English /I/ : /i:/ contrast is usually preserved in minimal pairs such as К*и*тс (Kitts) – К*ий*тс (Keats), П*и*т (Pit) – П*ий*т (Pete), См*и*т (Smith) – См*ий*т (Smeeth). The diphthongal (/ij/) spelling (B. *ий*) and pronunciation are used quite consistently in the Bulgarian forms of monosyllabic names such as Д*ий*н (Dean), Л*ий*дс (Leeds), О'Н*ий*л (O'Neil(l)), Фл*ий*т Стр*ий*т (Fleet Street), a.o. (for examples cf. Danchev 1982). In polysyllabic names E /i:/

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[2] For competent help in the interpretation of the acoustic data I am indebted to Dr. E. Gerganov from the Laboratory of Applied Linguistics at the Institute for Foreign Students in Sofia.

[3] Given the "very questionable status of the concept of "tenseness"" (Suomi 1983:108 f.), I stick to the traditional concepts of "short" and "long" vowels (cf. also Lass 1976, Danchev 1981).

tends to be shortened to /i/, e.g. in Д*и*фънбейкър (Diefenbaker) and Ф*и*лдинг (Fielding), thus following the adaptation pattern in ordinary loanwords such as т*и*м (team) and л*и*дер (leader) (for details cf. Danchev 1986). The tendency for a long vowel to be shorter in polysyllabic words is well known, of course (cf., e.g., Lehiste 1970). B /ij/ is fairly close phonetically to E /ij/, often given as an alternative notation for E /i:/.

It should be noted that /I/ : /i:/ is the only quantitative contrast of English that can partially be preserved in the corresponding Bulgarian forms. Interestingly, the /ij/ sequence (Bulgarian has no diphthongs proper) in Bulgarian is confined to open syllables only, so that its acceptance in monosyllabic foreign names can be regarded as a marginal phonological innovation (cf. also Danchev 1982, 1986).

A complex correspondence obtains thus, in which the short vowel of the English contrast corresponds to one vowel in Bulgarian and the long vowel of that same contrast corresponds to two vowels in Bulgarian, one of which is the short vowel of the first correspondence.

More or less the same set of correspondences obtains also in the interlanguages of intermediate and advanced Bulgarian learners of English and ought therefore to be taken into account in planning teaching strategies (for details cf. Danchev 1984).

Both the perceptual and acoustic data suggest that all four sounds: E /I/. E /i:/, B /i/ and B /ij/ belong in the same phonetic space, i.e. the space of the universal prototype vowel /i/, specified by the features "high" and "front". The Bulgarian /i/ is lower and shorter/laxer than E /i:/ and higher and longer/tenser than E /I/ (for acoustic measurements here cf. Despotova 1978) and comes closest to the prototype vowel /i/.

2.2 E /e/ → /e/

This is one of the relatively rarer cases of almost one-to-one correspondence, illustrated by numerous examples in the corpus such as *Е*дуин (Edwin), Х*е*нри (Henry), a.o.

Both the perceptual and acoustic data indicate that the two vowels belong in the same phonetic space, specified by the features "mid" and "front". B /e/ is somewhat longer than E /e/, but otherwise these are the two sounds that come closest to each other in the two languages. In any case, B /e/ is closer to the universal prototype vowel /e/.

2.3. E /æ/ ↘ B /a/
E /a:/ ↗

The grouping together of E /æ/ with E /a:/ may appear somewhat unexpected, but is motivated from the point of view of the receptor language.

As a matter of fact, the real state of things is a bit more complex than suggested by the E /æ/ → B /a/ correspondence indicated above. Depending on a variety of factors (for details cf. Danchev 1988), E /æ/ can be rendered in Bulgarian by means of a trifurcation comprising /e/, /ja/, /a/ in this approximate order in terms of frequency. Occasionally all three renditions can be found in the Bulgarian forms of the same English name, e.g.:

C*a*mpbell: К*а*мбъл – К*е*мбъл – К*я*мбъл
South*a*mpton: Саутх*а*мптън – Саутх*е*мптън – Саутх*я*мптън

The natural impulse for Bulgarians is to identify E /æ/ with B /e/ (and somewhat less frequently with /ja/ in the case of speakers with an Eastern Bulgarian dialectal background – for details cf. Danchev 1988), as is actually the case with the speakers of many other languages judging by loanwords adaptation (cf., e.g., the data in Filipović (1982), Viereck and Bald (1986)) and interlanguage evidence (cf., e.g., Wode (1980), Barbour (1984)). In all such cases the relevant identification cue is evidently provided by the "front" feature, rather than by the "low" feature.

Though phonetically and perceptually motivated, the serious functional shortcoming of the E /æ/ → B /e/ rendition pattern lies in the fact that it obliterates the important /æ/:/e/ contrast in English. Whereas in the case of ordinary words (e.g. p*e*n – p*a*n, t*e*n – t*a*n) the context will practically always help to avoid any potential misunderstandings and could thus make the /e/ adaptation acceptable (moreover, it occurs in some varieties of English as well), with proper names the situation is quite different. Being less dependent on the context (as, for example, when occurring on a list or when quoted in isolation), proper names are often distinguished solely through the respective surface contrasts, in this case the /æ/:/e/ contrast. There are scores of such cases in the corpus, e.g.:

*A*ddington – *E*dington
*A*ddison – *E*dison
*A*lice – *E*llis
*A*nfield – *E*nfield
*A*shley – *E*shley
B*a*gley – B*e*gley
Br*a*dbury – Br*e*dbury
C*a*mpbell – K*e*mble
Ch*a*rrington – Ch*e*rringron
D*a*nby – D*e*nby
F*a*rrer – F*e*rrer
H*a*dley – H*e*dley
H*a*mpstead – H*e*mpstead
H*a*nley – H*e*nley
M*a*doc – M*e*doc
P*a*rry – P*e*rry
R*a*dcliffe – R*e*dcliffe
R*a*dford – R*e*dford
S*a*xton – S*e*xton
Str*a*tford – Str*e*tford

a.o. (for more examples cf. Danchev 1982). In order to avoid the coalescence in the receptor language of names that are distinct in the source language, the functional criterion requires that E /æ/ should be rendered with /a/ in Bulgarian. The phonemic system criterion therefore helps us to make the communicatively correct choice out of several existing phonological translation equivalents.

The acoustic data show that E /æ/ is closer to B /e/ in F2 values and closer to B /a/ in the F1 values. The fact that Bulgarian native speakers tend to identify E /æ/ mainly as /e/ is due to the fact that F2 is more relevant for the identification of front vowels. It may be recalled that the acceptability of B /a/ for E /æ/ can also be argued for from the point of view of some varieties of English.

Therefore /a/ is recommended as the Bulgarian phonological equivalent of E /æ/, both for the rendition of names and as an acceptable interlanguage variant (where it can provide the starting point for a gradual approximation towards /æ/).

Let us turn now to the E /aː/ → B /a/ correspondence. Since the E /æ/ : E /aː/ contrast is lost in Bulgarian there arises the question as to its functional importance. The corpus does not seem to contain any instances in which this contrast is crucial for the distinction of names (except for cases where the lengthening is due to /r/). This is easily explained, of course, since due to specific historical developments R. P. /æ/ and /aː/ usually occur in complementary distribution.

Whereas E /aː/ and B /a/ undoubtedly belong in the same phonetic space, specified by the features "back" and "low", E /æ/ evidently belongs here only partly. In terms of prototype theory this would then be a typical case of 'partial matching' (Krzeszowski 1986). With its "front" feature, which was seen to be perceptually more relevant, E /æ/ matches partially the universal /e/ vowel. However, the functional criteria make us prefer the E / → B /a/ correspondence.

2.4. E /ʌ/ ↘ B /ɔ/
E /ɜː/ ↗

This is another instance of two different English sounds being rendered by one sound in Bulgarian (an 'inverse bifurcation', so to speak). A straightforward bifurcation, not indicated above, actually occurs with E /ʌ/, which has two phonological equivalents in Bulgarian — /ɔ/ (more frequent) and /a/.

Once we have accepted the E /æ/ → B /a/ phonological correspondence (cf. § 2.3 above), the phonological system criterion obviously requires us to render E /ʌ/ with /ɔ/ (spelled with Cyrillic ъ) in Bulgarian. In this manner the English /ʌ/ : /æ/ contrast is preserved in Bulgarian as well, e.g. in names such as

Bunting — Banting   H*u*mbert — H*a*mbert
C*u*lver — C*a*lver   H*u*mphrey — H*a*mphrey

Ch*u*ffey	– Ch*a*ffe	R*u*msay	– R*a*msay
C*u*mbria(n)	– C*a*mbria(n)	T*u*nner	– T*a*nner
D*u*dley	– D*a*dley	*U*nstone	– *A*nston
D*u*rrel	– D*a*rrell	a.o.,	

and there are also names such as

E	B
Redford	Р*е*дфорд
Radford	Р*а*дфорд
Rudford	Р*ъ*дфорд

which make quite obvious the advantage of taking into account surface phonological contrasts, unlike the purely phonetic criteria, which can easily lead to communicative inadequacy.

By means of the /ə/ equivalent the coalescence is avoided in Bulgarian of names that are pronounced distinctively in English. The /ə/ is therefore recommended (and is indeed current in Bulgarian public usage) for the Cyrillic transcription of all English names that contain the /ʌ/ vowel, e.g. Х*ъ*лсън (Hudson), М*ъ*нди кл*ъ*б (Monday Club), С*ъ*нди Таймс (Sunday Times), a.o.

The same substitution is acceptable for learner interlanguages (moreover, /ə/ instead of /ʌ/ occurs in American English and in some varieties of British English) and such a teaching strategy has indeed been discussed (Danchev 1984).

The E /əː/ → B /ə/ correspondence is practically exceptionless, illustrated by numerous examples such as Б*ъ*рт (Burt), *Ър*нест (Ernest), Ш*ъ*рли (Shirley), a.o. The obvious question to ask is again whether such a reduction of two vowels in the source language to one vowel in the receptor language is acceptable in view of the existing contrasts in the source language. In this particular case the corpus has not produced any problematical situations. This is due to the fact that since the E /r/ is preserved in the Bulgarian forms the latter will always remain distinctive. From a functional point of view such a solution is therefore acceptable and informationally adequate.

E /əː/ and B /ə/ belong in the same phonetic space, specified by the features "central" and "mid", whereas E /ʌ/ is closer to the universal /a/ vowel type. This is an obvious instance of a functional correlation being established between vowels belonging to different phonetic spaces.

2.5. E /ʊ/ ↘
E /uː/ ↗ B /u/

The rendition of both E /ʊ/ and /uː/ by means of B /u/ (spelled *у* in the Cyrillic alphabet) is practically exceptionless, as seen e.g. in names such as Б*у*ш (Bush), Г*у*дман (Goodman), П*у*л (Poole), О'Т*у*л (O'Toole), Дж*у*ди (Judy), a.o.

Here too there arises the question as to the functional relevance of the respective contrast in English. It is worth noting at this point that the /ʊ/ : /u/ contrast has had a low functional load throughout the history of English (for details cf. Danchev 1981), so that its loss in the Bulgarian renditions of the respective English names does not create any communicative problems (except in some cases of back derivation of names from Bulgarian to English). As regards learner interlanguages, however, the same strategy as with E /i:/ has been recommended, that is (cf. § 2.1), /u:/ in monosyllabic words and /u:/ or /v/ in all other cases.

The perceptual and acoustic data indicate that E /ʊ/, E /u:/ and B /u/ belong in the same phonetic space, specified by the features "back" and "high". The Bulgarian vowel is lower and shorter than E /u:/ and higher and longer than E /ʊ/, thus coming closest to the universal /u/ vowel prototype.

2.6. E /ɔ/ ↘ B /o/
E /ɔ:/ ↗

Here too the rendition of both E /ɔ/ and E /ɔ:/ by means of B /o/ is practically exceptionless (some *a* spellings, which reflect the more open quality of the short vowel in American English, e.g. У*а*търс (Waters), are statistically unimportant), illustrated by examples such as *О*гдън (Ogden) and Дж*о*н (John) for the short vowel and *О*рмс (Orms), Х*о*к (Hawk) for the long vowel.

The corpus does not seem to contain many pairs of the H*o*ck: H*a*wk type and all the minimal pairs in which the long vowel is before /r/ remain distinctive in Bulgarian as well since the /r/ (though silent in R. P. English) is always preserved in the Bulgarian transcriptions of English names. The neutralization of this contrast therefore does not entail any significant communicative problems.

The perceptual and acoustic data indicate that all three vowels considered in this section belong in the same phonetic space, specified by the features "back" and "mid". The Bulgarian vowel is more rounded than either of the English vowels. It is shorter than the E /ɔ:/ and longer than the /ɔ/, thus coming closest to the universal /o/ prototype.

3. SOME CONCLUSIONS

As has been pointed out by Fisiak (1975:346), applied phonological contrastive studies are unidirectional, and thus far the direction has been from English towards Bulgarian. The point now is whether the correspondences established here can be used for pedagogical purposes. As was noted in various places in this paper, practically the same set of correspondences (especially of the short vowels) can be used for teaching strategies as well. This implies a change of direction, of course, namely from Bulgarian as the native language towards English as the target language. The fact that some of the correspondences turn out to be bidirectional implies that they can be regarded as valid on the systemic level of analysis as well and can therefore be part of an expanded model of contrastive analysis which processes both language and speech data (for a more general description of such a model cf. Danchev & Grozeva (1985)).

The following correspondences (bidirectionality is marked by double arrowheads) can be set up now:

A			B		
Short Vowels			Long Vowels		
E		B	E		B
/ɪ/	↔	/i/	/iː/	↗	/ij/
/e/	↔	/e/		↘	/i/
/æ/	↔	/a/	/uː/	→	/u/
/ʊ/	↔	/u/	/ɜː/	→	/ə/
/ɔ/	↔	/o/	/ɔː/	→	/o/
/ʌ/	↔	ə/	/aː/	→	/a/

The fact that bidirectionality applies only to the short vowels (plus the B /ij/ ↔ E /iː/ correspondence) is evidently due to the absence of long vowels in Bulgarian. On the whole, the scheme of correspondences offered above ensures the preservation of relevant phonological contrasts without violating too much the phonetic parameters (except in the case of E /æ/ and E /ʌ/). On the contrary, by proceeding from perceptual data a degree of naturalness is achieved. The short vowels have the optimal scheme of correspondences (with all the contrasts preserved), whereas the long vowels exhibit neutralization of phonological quantity.

At first sight the neutralization of the vowel quantity contrasts constitutes the most obvious drawback of the above system. However, on closer scrutiny it turned out that the losses are not so significant after all. The degree of loss is assessed through the time honoured functional load criterion of classical phonology. Although its usefulness has been questioned by various authors (e.g. Lass 1980), there are obvious cases where it can be used profitably. The application of this criterion to the data in the corpus revealed, e.g., that the heaviest functional load occurs with the English /ɪ/:/iː/ contrast, that is, precisely the one which it is possible to preserve in the receptor language. The English /ʊ/:/uː/ contrast was seen to have a statistically unimportant functional load and most of the remaining contrasts are preserved thanks to the retention and pronunciation in the receptor language of the source language silent /r/.

The approach adopted here evidently points to the further rehabilitation of the surface phoneme, advocated in a number of publications (e.g. Schane (1971), Donegan & Stampe (1979), and cf. also Danchev (1983)). And, as has been pointed out, "... surface sound distinctions, though rehabilitated, have not recovered the very important position which they should have for contrastive analysis" (Barbour 1984:124). One of the aims of this paper has been to draw attention to a specific practical area where such an approach has proved indispensable and productive in cross-language argumentation. Some more far-reaching generalizations and conclusions can be made after the contrastive analysis of the consonants. On the other hand, being confined to static surface phenomena, such an analysis undoubtedly remains incomplete, unless morphophonemic alternations are examined too (cf. also Awedyk 1979). Thus, for example, a generative oriented approach would be needed to capture vocalic alternations in Bulgarian examples such as xl*ja*p (bread) and xl*e*ben (adjective, derived from 'bread').

A further refinement of the analysis can be achieved by scaling more precisely the perceptual distances between the various vowels.

The relatively simple system of six phonetic spaces, represented by the universal vowel prototypes /i/, /e/, /a/, /o/, /u/ plus /ə/, has proved sufficient for establishing the basic phonological correspondences of the stressed vowels. Though phonetically crude, it has turned out to be adequate for the establishment of the relevant surface phonology contrasts.

APPENDIX – ACOUSTIC DATA

1. ENGLISH

VOWELS	FORMANT No	Wells (1962)	Delattre (1964)	Henton (1982)
/iː/	1	285	300	272
	2	2373	2200	2361
/ɪ/	1	356	350	380
	2	2098	1950	2085
/e/	1	569	400	525
	2	1965	2100	1943
/æ/	1	748	750	713
	2	1746	1700	1615
/aː/	1	677	750	636
	2	1083	1100	1050
/ɔ/	1	599	550	551
	2	891	900	860
/ɔː/	1	449	400	429
	2	737	800	697
/ʊ/	1	376	375	406
	2	950	1000	1103

VOWELS	FORMANT No	Wells (1962)	Delattre (1964)	Henton (1982)
/uː/	1	309	300	347
	2	939	900	1149
/ɜː/	1	581	500	514
	2	1381	1200	1417
/ʌ/	1	722	600	645
	2	1236	1200	1200

2. BULGARIAN

VOWELS	FORMANT No	Tilkov (1968)	Lehiste & Popov (1970)	Simeonova 1975
/i/	1	251	325	242
	2	2006	2140	2187
/e/	1	411	500	373
	2	1665	1810	1751
/ə/	1	350	495	365
	2	1132	1515	1440
/a/	1	513	770	412
	2	1083	1455	1390
/o/	1	367	495	416
	2	794	990	1050
/u/	1	278	365	305
	2	662	945	836

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ASPIRATION IN ENGLISH AND POLISH: AN OVERVIEW

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The phonetic nature of aspiration has been variously described.[1] For instance, Jones (1956:68, 70, 74; 1960:138) speaks about a little (or noticeable) "puff of breath". Abercrombie (1967:148) and Gimson (1970:151) refer to "a period of voicelessness" and "a voiceless interval" respectively in describing aspiration. Jassem (1954:64; 1971:172) observes that aspiration can be compared to a voiceless vowel. Since in connected speech several types of periods of voicelessness can be observed, phoneticians feel obliged to supply their definitions of aspiration with details concerning its distribution or the state of the larynx which gives rise to aspiration. It is in the last-mentioned part of their statements that phoneticians and linguists differ most.

Of the two languages mentioned in the title of the present article, English has been more thoroughly investigated in respect of aspiration than Polish. In addition to the sources mentioned above as well as numerous works by American descriptivists (not mentioned here on account of the lack of space), aspiration in English and aspiration in general have been discussed in the generative literature, compare e.g. Chomsky and Halle (1968:326, *passim*), Hoard (1971), Kahn (1976), Selkirk (1980a, b), to mention a few authors. Polish phoneticians, on the other hand, describing normal Polish speech, ignore the phenomenon of aspiration almost completely. For instance, there is no mention of aspiration in Benni (1964). Wierzchowska (1971:151, note 1) observes that:

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[1] We will see later that aspiration in both Enblish and Polish is rule-governed, i.e., it is a redundant phenomenon. The reason why we are concerned with it here is that an adequate phonetic theory should account for all features, distinctive or redundant, with respect to which languages can systematically differ from one another. For discussion see Anderson (1974:8ff.)

(1) In Polish aspiration is extremely weak and generally escapes the speakers' attention (translation mine, P.R.).

In Wierzchowska (1980:43, and note 9), she states that aspiration is more clearly marked in the *p, t, k* when articulated forcefully and adds that it can be clearly seen on spectrograms of these consonants.

Biedrzycki (1972:27) instructs the German students of Polish not to insert the German equivalents of Polish /p, t, k/ when learning the language and includes the following warning:

(2) So klingen die Wörter **pan, ten, kąt**, wenn sie mit deutschem /p, t, k/ gesprochen werden, für den Polen as /p-h-an/, /t-h-ɛn/, /k-h-ɔnt/. Man muss also daran denken, dass das polnische /p, t, c, k/ schwach, ohne Behauchung gesprochen wird.

In Biedrzycki (1975:21) he observes that the stressed syllable of *taki* 'such, one like this' is devoiced when the word is pronounced emphatically with a rising tune, but does not relate this fact to the phenomenon of aspiration.

The Polish linguistic literature contains only sporadic references to the occurrence of aspiration in connected speech. Dłuska (1950:80) links aspiration to hesitant speech. Doroszewski (1952) notes the occurrence of aspiration in the dialects of Western and Northern Poland and attributes it to the influence of German. Moreover, he mentiones emphasis as a factor conditioning the presence of aspiration. More recently, Rubach (1974) brings a few observations on aspiration in Educated Warsaw Polish.

In the remainder of the paper I will concentrate on, among other things, emphasis as a factor conditioning aspiration in Polish. Hesitant speech, which affects only isolated words, will be left out from discussion here. Also, no attention will be given to aspiration when it results from foreign influence.

Pregenerative studies of aspiration in English concentrated on the following issues:

(3) a. identifying the set of segments which undergo aspiration;
  b. locating aspiration with respect to the segments identified in (3a) and the environment that follows in a sound sequence;
  c. singling out the factor(s) that condition(s) the occurrence of aspiration; pointing out factors which block it; and
  d. describing the articulatory or acoustic nature of aspiration.

It is fair to say that whereas the structuralists were successful in dealing with the problems in (3a, d), their solutions offered to (3b, c) were far less satisfactory. The set mentioned in (3a) obviously includes /p, t, k/.

Consider a few statements relating to (3b):

(4) a. between the phase of closure [of a voiceless plosive] and the beginning of a [following] vowel we simply exhale air (Jassem 1951:100; translation mine, P.R.);

b. there is a little puff of breath, ..., immediately following the plosion and preceding the vowel (Jones 1956:68);

c. there is a voiceless interval consisting of strongly expelled breath between the release of the plosive and the onset of a following vowel (Gimson 1970:151);

d. a period of voicelessness that follows the voiceless closure phase of a stop (Abercrombie 1967:148).

Of the above-mentioned authors, only Abercrombie is careful enough not to rule out aspiration in, for instance, *play*, *try*, *cure*, *qualm*, and *mat*. The statements adduced in (4a-c) all fail to account for the occurrence of obligatory aspiration in the first four of the words and for the presence of optional aspiration in the fifth.[2]

Consider next a set of proposals concerning (3c):

(5) a. When **p** commences a strongly stressed syllable, it is somewhat "aspirated" in Southern speech (Jones 1956:68); **p** has little or no aspiration in weakly stressed syllables, as for instance in **ˈhapi** (*happy*), **ˈwispə** (*whisper*). Nor is there much aspiration when **s** precedes in a strongly stressed syllable, as in **ˈspendiŋ** (*spending*) (*ibid.*, p. 69; cf. pp. 70 and 74 for a description of aspirated **t** and **k**);

b. The fortis series /p, t, k/, when initial in an accented syllable, are usually accompanied by aspiration... When /l, r, w, j/ follow /p, t, k/ in such position, the aspiration is manifested in the devoicing of /l, r, w, j/... In other positions, i.e. preceding a vowel in an unaccented syllable and finally, such aspiration as may occur is relatively weak... When /s/ precedes /p, t, k/ initially in a syllable, there is practically no aspiration, even when the syllable carries a strong stress (Gimson 1970:151);

c. The released aspiration, ..., occurs when a plosive is followed by a vowel in a stressed syllable. In other words, in *pertain*, for example, [t] will be accompanied by aspiration and [p] not, since it appears in an unstressed syllable. A restriction must be made here: there is no aspiration if a plosive is preceded by [s] in the same word (Rubach 1974:100);

d. Aspirated allophones of the fortis stop (occlusive) phonemes occur as complete onsets of accented syllables (Jassem 1983:198);
The occlusives /p, t, k/ are also aspirated in utterance-final position (*ibidem*);

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[2] To simplify matters, the question of optional aspiration will be left out from further discussion.

By obligatory aspiration I mean here that if a yet-to-be-discussed set of conditions is satisfied, aspiration will invariably occur.

> There is slight aspiration of /p, t, k/ also in coda position before fricatives (*ibid*., p. 199);
> The fortis occlusives are represented by unaspirated allophones (with oral release) after syllable-onset /s/ in accented syllables and in unaccented syllables before all vowels (*ibidem*).

Several comments are in order here. What strikes one is the lack of consensus on the role of the syllable in determining the presence or absence of aspiration. This is most clear in (5c) where both the syllable and the word are referred to. Needless to say, examples like *miscalculate* or *miscarry* contravene the final part of Rubach's (1974:100) statement in (5c). Secondly, cases of obligatory and optional aspiration are all put into one basket. Thirdly, although it appears that aspiration in English is a gradeable phenomenon, no clear decision is made as to where the dividing line between aspirated and unaspirated plosives should be drawn. Fourthly, the various degrees of aspiration are noted, but not properly accounted for. We will see later that Gimson's (1970) account of aspiration comes closest to the truth.

The generative approach to aspiration is marked by the following features:

(6) a. there is a separable rule which assigns aspiration to a set of segments; in other words, the distribution of aspiration is believed to be rule-governed (cf. note 1);

b. the features describing aspiration are: [hightened subglottal pressure] combined with lack of glottal constriction (Chomsky and Halle 1968:326), or [aspirated] (Schane 1973:96; Selkirk 1980a:7, 1980b:577), or a combination of Halle and Stevens' (1971) laryngeal features [+spread glottis] and [−constricted glottis], used successfully in Kahn (1976:42, *passim*). It is the latter proposal that will be followed here.

c. the position of the relevant segments in the structure of the syllable is believed to be a decisive factor governing the distribution of aspiration.

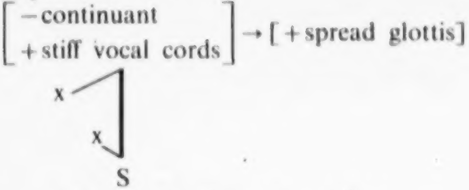
In generative phonology, rules typically assume the form in (7):

(7) $A \rightarrow B / - C$

In the case under discussion, *A* comprises the segments /p, t, k/, *B* a set of features, e.g. [+spread glottis, −constricted glottis] (cf. (6b) above), and *C* refers to certain aspects of the syllable. Observe that "– C" need not occur after the slanting line; it may merge with the specification in *A*.

Let us now consider Kahn's (1976:45) version of the aspiration rule in English. It is reproduced here as (8):

(8) Aspiration



$$\begin{bmatrix} -\text{continuant} \\ +\text{stiff vocal cords} \end{bmatrix} \rightarrow [+\text{spread glottis}]$$

The specification $\begin{bmatrix} -\text{continuant} \\ +\text{stiff vocal cords} \end{bmatrix}$ identifies the fortis plosives /p, t, k/. *S* is the symbol of the syllable. The small *x*s indicate that no further associations are possible to the left of S. In particular, the lower *x* indicates that the /p, t, k/ are syllable-initial. The upper *x* insures that the relevant consonants are not ambisyllabic, i.e. both syllable-final and syllable-initial. It is a language-specific redundancy that English /p, t, k/ are [−constricted glottis].

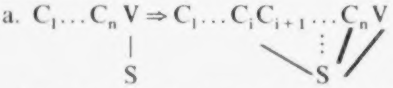
The lines below the feature specification in (8) result from the application of the following well-formedness conditions (Kahn's (1976:21) (8a-c)):

(9) a. Each [+syllabic] segment is associated with exactly one syllable.
b. Each [−syllabic] segment is associated with at least one syllable.
c. Lines associating syllables and segments may not cross.

Observe that (9b) presents a relaxation of the traditional view of the syllable requiring that each (i.e. not only [+syllabic] but also [−syllabic]) segment be associated with exactly one syllable.[3]

The well-formedness conditions work in conjunction with the following syllable-structure assignment rules (Kahn's (1976:22-31) (10), (12), (22), (24) and (30), respectively):

(10) a. Rule I:
With each [+syllabic] segment of the input string associate one syllable.[4]
b. Rule II:



$$\text{a. } C_1\ldots C_n \underset{\substack{|\\ S}}{V} \Rightarrow C_1\ldots C_i C_{i+1}\ldots C_n V$$

where $C_{i+1}\ldots C_n$ is a permissible initial cluster but $C_i C_{i+1}\ldots C_n$ is not.

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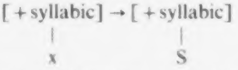
[3] In constructing (9a-c), Kahn draws heavily on Goldsmith's (1974; 1975) early work.

[4] The rule can be formalized in the following way:

(i) Rule I (formal version):



$$\underset{\substack{|\\ x}}{[+\text{syllabic}]} \rightarrow \underset{\substack{|\\ S}}{[+\text{syllabic}]}$$

where the specification to the left of the arrow symbolizes an unassociated segment.

b. $$\begin{array}{cccc} V & C_1 \ldots C_n & \Rightarrow & VC_1 \ldots C_j C_{j+1} \ldots C_n \\ | & | \quad\;\; | & & \diagdown\,|\,\diagup \\ | & x \ldots x & & \\ S & & & S \end{array}$$

where $C_1 \ldots C_j$ is a permissible final cluster but $C_1 \ldots C_j C_{j+1}$ is not.

c. Rule III:

$$\begin{array}{ccccc} \text{In} & [-\text{cons}] & CC_0 & \begin{bmatrix} V \\ -\text{stress} \end{bmatrix} & \text{associate C and } S_1. \\ & | & \diagdown\diagup & & \\ & S_1 & S_2 & & \end{array}$$

d. Rule IV:

$$\begin{array}{ccccc} \text{In} & C & C_0 & \begin{bmatrix} V \\ -\text{stress} \end{bmatrix} & \text{associate C and } S_2. \\ & | & \diagdown & \diagup & \\ & S_1 & & S_2 & \end{array}$$

e. Rule V:

$$\begin{array}{cccc} \text{In} & C & V & \text{associate C and S.} \\ & & | & \\ & & S & \end{array}$$

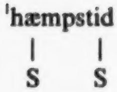
Rules I-IV have the word as their domain of application. Rule V alone is supposed to apply in connected speech.

Rules I-IV do more than just formalize the structuralist concept of syllabication. The status of Rule I is uncontroversial. It states that the number of syllables in a sequence (i.e. a word) is determined by the number of the [+syllabic] segments. Rule II, which incorporates two subrules, formalizes, and somewhat modifies, the traditional, albeit controversial (for discussion see Cygan 1971:109ff.), view that intervocalic sequences of nonsyllabic segments are analysable into a word-final (and *ipso facto* syllable-final) cluster followed by a word-initial (*ipso facto* syllable-initial) cluster. Moreover, the rule chooses the preference for maximal syllable-initial clusters over one for maximal syllable-final clusters. This property of the rule follows from two facts: (1) that the rule may refer to the inventories of syllable-initial and syllable-final clusters in the language and (2) that Rule (IIa) is ordered before Rule (IIb). For instance, given (11):

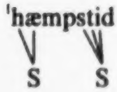
(11) ˈhæmpstid *Hampstead*

Rules I, IIa and IIb, applied in this order, produce (12a, b, c), respectively:

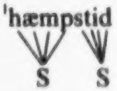
(12) a.



b.

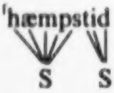


c.



but not (13):

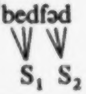
(13)



although there is nothing wrong with /mps/ as a syllable-final cluster (cf. *glimpse*).[5]

Rules III-IV make consonants ambisyllabic in certain environments. They are subject to both universal phonetic and language-specific restrictions on syllable-initial clusters. For instance, Rule IV will not convert (14):

(14)



Bedford

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[5] Certain problems arise when Ruke II is applied in British English (and, probably, in American English, too). Consider the following examples from Jones (1963):

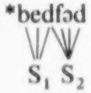
(i) a. [disˈlaik] *dislike*, [disˈlɔdʒ] *dislodge*, [disˈmæntl] *dismantle*,
b. [disˈroub] *disrobe*, [disˈrʌpt] *disrupt* (and other related forms)
c. [disˈplei] *display*, [disˈpli:z] *displease*, [disˈpru:vəl] *disproval*; but
d. [diˈspirit] *dispirit*.

If the position of the stress-mark is taken to indicate syllable divisions, then the onsets of the stressed syllables are not maximal. The examples in (ib) can perhaps be explained by referring to the fact that /sr/ is not a word-initial cluster (for discussion see Gussmann 1978:127ff.; the few borrowings that exist in English (*Sri Lanka, Srinager*) do not invalidate the generalization though they cast doubt on Gussmann's (1978:127) claim that word-initial /sr/ is automatically changed into /ʃr/. It appears that a weaker constraint should be adopted, namely, /sr/ is not an absolute gap in word-initial position. This being the case, the generalization holds only of native words, but may be violated by borrowings). With regard to the forms in (ic) we may observe that in Hornby (1974) they have all been reanalysed to conform to the principle of maximizing syllable-initial clusters; they now fall under the pattern exhibited by (id). Despite the current forms like:

(ii) *slant*, *slay*, *slight*; *smile*, *smoke*, *smuggle*; *snack*, *snake*, *snow* etc.

a medial sequence of /s/ plus a liquid or nasal does not tend to form a syllable-initial cluster. It is rather the case that it straddles the syllable boundary, with either member belonging to a different syllable.

into (15):

(15) 

since as a syllable-initial cluster /df/ is ruled out on universal phonetic grounds.

As mentioned above, Rule V applies in connected speech, making for instance the /k/ in:

(16) *Look at John.*

ambisyllabic. The working of this rule is irrelevant to our considerations here.

Not all linguists recognize the phenomenon of ambisyllabic consonants. For instance, in Selkirk (1980a, b) consonants are always assigned unambiguously to one syllable or another. Under certain conditions a consonant undergoes resyllabification. It is important to note, however, that resyllabication never makes consonants ambisyllabic. Her rule of aspiration, reproduced below (Selkirk's (1980b:577)(14)):

(17) $$\begin{bmatrix} -\text{cont} \\ -\text{son} \\ -\text{voice} \end{bmatrix} \rightarrow [+\text{aspirated}]/{}_{\sigma}(- \ldots)_{\sigma}$$

where σ symbolizes the syllable, makes slightly different predictions than Kahn's (1976) rule quoted above.[6]

Other linguists, for instance Anderson and Jones (1974), see the need for postulating ambisyllabic consonants but use the bracket notation to indicate this fact. For example, the word *whisky* would be syllabified in the following fashion:

(18) $[_1 \text{wi} [_2 \text{sk}]_1 \text{i}]_2$

It appears then that on the Anderson and Jones approach not only single consonants but also consonant clusters can be ambisyllabic. It is fair to say at this point that Kahn's (1976) approach is more restrictive in that it disallows clusters of two or more consonants to be ambisyllabic. The formal device that expresses this prohibition is the well-formedness condition quoted in (9c) above.[7]

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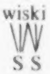
[6] Selkirk's (1980) approach to the structure of the syllable differs from Kahn's (1976) in that, whereas Kahn's syllable consists of sister nodes alone, Selkirk organizes it into a hierarchical structure. However, she fails to refer to this structure while discussing the phenomenon of aspiration.

[7] In particular, (18), when translated into Kahn's diagram, assumes the form in (i):

(i) 

which is illicit. Cf. the discussion in Kahn (1976:20).

Let us now consider the predictions made by Kahn's approach to aspiration in English in relation to the description of aspiration by the structural linguists quoted above. The first difference involves a shift in what is to be considered the decisive factor: being followed by a stressed vowel versus occupying the initial position in a syllable (regardless of stress). Thus, contrary toRubach's (1974:100) claim (quoted in (5c)) concerning the distribution of aspiration in *pertain*, Kahn's (1976) analysis predicts that since both /p/ and /t/ occur in syllable-initial position, they get aspirated. Jassem's (1983:198) condition (quoted in (5d) above) that /p, t, k/ "occur as complete onsets of accented syllables" also turns out to be irrelevant. The inclusion of the requirement that /p, t, k/ constitute "complete onsets" makes aspiration impossible in (19):

(19) *pray, cléan, cure, twice*

contrary to Gimson's (1970:151) statement adduced in (5b).

Observe that no additional statement is required to block aspiration in (20):

(20) *spirit, strident, scrutiny*

since /p, t, k/ simply do not occur in the initial position of the respective syllables.

Kahn's (1976) and Selkirk's (1980) approaches make different predictions with respect to the *happy* class of words referred to in (5a). Since on the Selkirk analysis /p/ starts a new syllable, it invariably gets aspirated. On the Kahn approach, on the other hand, the position of /p/ with respect to the neighbouring syllabic peaks depends on the rate of speaking. In slow, syllable-by-syllable speech, Rule III does not apply, leaving intact Rule II's assignment of /p/ to the following peak. In normal-rate speech Rule III does apply and makes /p/ ambisyllabic, thereby preventing the aspiration rule from applying (for details, see Kahn 1976:26-28, and 31).

Structural phoneticians noted several degrees of strength in connection with aspiration. On the approach followed here aspiration is also characterized by several degrees of strength. Its strength is a function of the degree of stress. Kahn (1976:42) presents the following series:

(20) *t*e̋n, *t*én, *t*èmperaméntal, *t*ŏmorrow, s*t*em

and observes that "there appears to exist a categorical distinction between the first four cases and the last" (*ibidem*). He adds that "no amount of emphasis will introduce aspiration in the post-/s/ cases: [st^{h}ä̋pit] is not possible for *stop it*!" (*ibid*., p. 43).[8] It will prove interesting to relate the last-mentioned statement to some Polish data discussed later in the paper.

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[8] In the examples from Kahn (1976) a double acute accent indicates emphatic stress, a single acute accent stands for primary stress and a grave accent symbolizes secondary stress.

Before switching to the discussion of the Polish data, let us discuss briefly the question of how Kahn's (1976) (or Selkirk's 1980) approach accounts for a set of marginal data listed in (21) (from Jones 1963):

(21) a. [ˈpʃemisl] *Przemysl*
b. [pseˈfɔlədʒist] *psephologist*
c. [ˈpsjuːdənim] *pseudonym*
d. [psai] *psi*
e. [ˌpsitəˈkousis] *psittacosis*
etc.

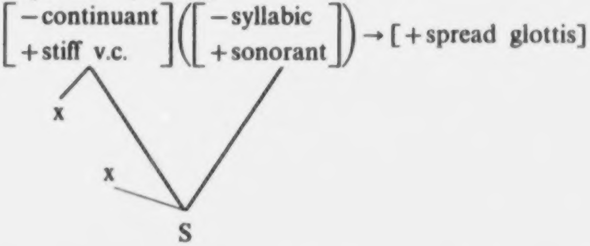
It is true that some of the examples in (21a-e) are only second-place pronunciations. This observation applies to (21b, c), but not to the remaining cases.

Observe that all of the examples violate the sequence redundancy statement of English which says that if a morpheme begins with two [-son] segments, the first must be a /s/. The fact that the forms quoted above do occur in English speech suggests that morpheme structure conditions do not have the power of an absolute filter. We should therefore opt for a weaker position taken in Rubach (1982:172) that "they [i.e. sequence redundancy rules, P.R.] exert what we might call 'a phonotactic pressure' on lexical entries which would violate them and, consequently, lead to a restructuring of underlying representations".

Kahn's (1976) and Selkirk's (1980) approaches erroneously predict that the /p/s in (21) all get aspirated. This is a highly undesirable state of affairs. The relevant rule needs revision.

As exemplified in (19), syllable-initial /p, t, k/ may be immediately followed by /r, l, j, w/ (cf. also (5b) above). The resulting clusters conform to the sequence redundancy statements of English. The rule of aspiration should be capable of differentiating between the syllable-initial clusters in (19) and those in (21). A plausible way to make it sensitive to this distinction is to write it in the following way:

(22) Aspiration (revised)



$$\begin{bmatrix}-\text{continuant}\\ +\text{stiff v.c.}\end{bmatrix}\left(\begin{bmatrix}-\text{syllabic}\\ +\text{sonorant}\end{bmatrix}\right)\rightarrow[+\text{spread glottis}]$$

The specification in parentheses picks up /r, l, j, w/, but not, for instance, /s/. Rule (22) is of course subject to the familiar principles of rule application, i.e., the rule should be tested for applicability in its expanded form before being tested in its reduced form.

Let us now turn to aspiration in Polish. As observed by other linguists (Doroszewski 1952; Rubach 1974), Polish /p, t, k/[9] are aspirated when they occur in emphatically stressed syllables. Of the two peripheral positions in the structure of the syllable occupied by consonants, the onset is of paramount importance here.

It thus appears that obligatory aspiration in English and Polish has two things in common: the set of segments that undergo the rule and their occurrence in the onset part of the syllable.

Let us look at some data from Polish, in particular the examples in (23) – (27):

(23) Jan był wczoraj nad jeziorem i złapał *t*a̋ką *r*ybę.
'John was fishing in the lake yesterday and caught a huge fish'.
(24) *P*a̋n mi to mówi? 'You're telling me that?'
(25) *K*őgo skrzywdziłem? 'Who did I hurt?'
(26) K*t*ő to powiedział? 'Who said that?'
(27) S*t*a̋szek go widzial? 'Stan saw him?'

as well as those in (28):

(28) a. Cz*t*e̋ry? 'Four?'
b. *K*iűr? 'Curium?'
c. K*t*ő? 'Who?'
d. *P*lűsz? 'Plush?'
e. *P*łőt? 'Fence?'
f. *P*ra̋wo? 'Law?'
g. S*p*őrt? 'Sports?'

The examples in (24) – (28) are supposed to be pronounced with high rising intonation. As was the case with Kahn's (1976) examples in (20), the double acute accent indicates emphatic stress. The italicized consonants are pronounced with aspiration. If /r, l, j, w/ follow them (cf. (28b, d, e, f)), they get devoiced. Unlike in English, Polish /p, t, k/ are aspirated even if preceded by a tautosyllabic fricative. However, no aspiration occurs in:

(29) Psa̋? (gen./acc. sing.) 'Dog?'

and other similar examples.

In the light of the foregoing discussion it appears that the /r, l, j, w/ following /p, t, k/ in the onset do not block aspiration. Polish differs from

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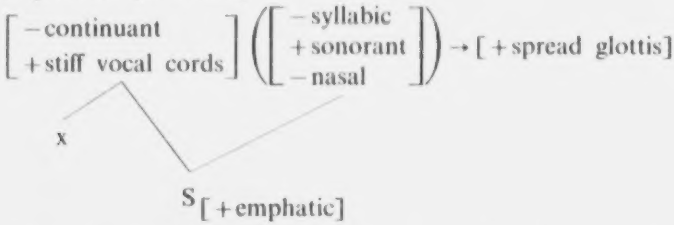
[9] The set does not include /c/ and other palatalized plosives since they are derived from the basic series /p, t, k/ by the rule of surface palatalization in the environment before /i, j/. For details see Rubach (1981:13, *passim*).

English in that it allows other consonants to precede /p, t, k/ in the onset (cf. (28a, c, g)). It follows that the aspiration rule in Polish should assume the following form:

(30) Aspiration (in Polish)



$$\begin{bmatrix}-\text{continuant}\\+\text{stiff vocal cords}\end{bmatrix}\left(\begin{bmatrix}-\text{syllabic}\\+\text{sonorant}\\-\text{nasal}\end{bmatrix}\right)\rightarrow[+\text{spread glottis}]$$

The rule in (30) differs from that in (22) in a number of respects. First of all, /p, t, k/ need not be syllable-initial (hence the lower *x* is absent from (30)). Secondly, since the sequence redundancy statements of Polish do not rule out clusters consisting of a plosive followed by a nasal, as in (31):

(31) *kmieć* 'serf', *knur* 'boar', *pniak* 'stump' etc.

the /p, t, k/ being unaspirated in this position even under emphatic stress, it is necessary to include the feature [−nasal] to narrow down the class of segments designated by $\begin{bmatrix}-\text{syllabic}\\+\text{sonorant}\end{bmatrix}$. Thirdly, and most importantly, the S has been provided with the specification [+emphatic].

The last-mentioned phenomenon calls for explanation. In the examples adduced in (23)–(28) the emphatically stressed syllable coincides with the one that carries the nuclear tune. As shown in Marek (1975), the assignment of the feature EMPH (emphasis) crucially depends on the feature FOCUS. In fact, emphasis can only be placed on an element that has already been assigned FOCUS. Focus in turn is assigned in clauses on the basis of semanto-syntactic data. The details of focus assignment need not concern us here (see Marek 1975:162-64). It is interesting to note though that only a single element in a particular clause can be assigned focus. Consequently, a clause can contain only a single occurrence of EMPH.[10]

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[10] Dogil's (1980:243) examples like the one in (i):

(i) To trzeba ZAbudować, nie ROZbudować.
'This should be built over, not expanded'.

where the capitalized stretches, being contrastively stressed, bear the feature [+E] (E for *emphasis*), do not invalidate the last-mentioned generalization. Of the two syllables marked [+E], only the left-hand one is really strong, with the right-hand [+E] syllable only echoing the former in strength. Consequently, in a sentence like (ii):

Given the form of the aspiration rule in Polish, it is clear that the feature [emphatic] determines the distribution of aspirated plosives in the language. In particular, there can be only a single occurrence of aspirated /p, t, k/ in a clause.

This conclusion may appear strange at first sight. It depicts the distribution of aspiration in Polish as quite different from its counterpart in English. Recall, however, that Kahn's (1976) achievement consists, among other things, in dissociating aspiration from the parameter of stress. As we have seen, this solution does not work for Polish. The feature [+emphatic] presupposes stress and its distribution is determined by syntactic and semantic factors.[11]

Finally, let us consider Gussmann's (1975:123) suggestions concerning rule comparability in contrastive phonological analysis. He assumes rule comparability to include the following factors:

(32) a. the scanning of strings meeting the structural description of the rule with phonological representations, i.e., is the rule exclusively fed by other rules or do phonological representations themselves require the rule?

b. interaction with other rules of the phonology, i.e., what rules feed or bleed it? what rules does it feed or bleed?

c. depth of ordering, i.e., is the rule placed relatively early or relatively late?

With respect to (32a) it appears that the aspiration rule in both English and Polish is exclusively fed by other rules. The two languages differ in terms of the rule's interaction with other rules. Although in both languages the rule depends crucially (i.e., is fed by) the rules of syllabication,[12] in Polish it is additionally fed by the rule of emphasis assignment. The latter is in turn fed by focus assignment.

In both languages the rule feeds the rule of sonorant devoicing.

(ii) Powiedziałem TAnie, nie PAnie.
'I said cheap, not ladies'.

only /t/ gets aspirated.

It is also to be noted at this point that (ii) is not made up of a single clause. Given that Polish personal pronouns in subject position are dropped if not contrastively stressed, the sequence *nie PAnie* appears to be an instance of gapping, the fully specified structure being *nie powiedzialem PAnie*.

[11] See Dogil (1980) for an autosegmental approach to focus and emphasis assignment in Polish (and English).

[12] It is true that the rules of syllabication in Polish have not been discussed here. I assume that they are similar to the rules developed for English by Kahn (1976) (see (10) above). It goes without saying that the syllabication rules in Polish depend on different inventories of word-initial and word-final clusters than the rules in (10), to break up medial clusters. For some basic differences in the respective inventories, see Rubach (1972).

Whatever other differences obtain in the effects produced by the aspiration rule in English and Polish, they are due to the differences in the formal make-up of rules (22) and (30).

In both languages the rule is exceptionless.

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THE COMPLEMENTS OF PERCEPTION VERBS IN ENGLISH AND POLISH A SYNTACTO-SEMANTIC ANALYSIS

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In this paper I would like to analyze perception verb complements (henceforth PVC) in English and Polish within the framework of Chomsky's "core grammar" presented in Chomsky (1981) and the method of syntactic analysis developed in Kopytko (1985 and 1986).

First I intend to summarize briefly the main points of the two articles mentioned above and then proceed with an analysis of selected English data and their Polish equivalents and to end the paper with conclusions and implications for contrastive linguistics.

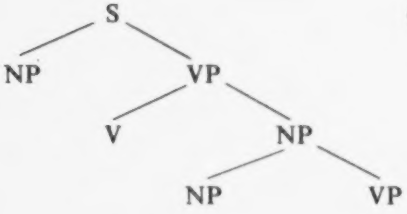
1. In Kopytko (1986b) I identified two different approaches to syntactic analysis within the framework of autonomous syntax. The first one based on arguments from syntactic constituent structure tests and arguments from overall simplicity of the statement of transformational rules as exhibited in Akmajian (1977), and the second developed by Chomsky (1981) in his theory of "core grammar" (including GB-theory, i.e. government and binding) which resorts to the fundamental principles of UG (i.e. universal grammar).

In addition to Gee's (1977) critique of Akmajian's analysis of PVSs in terms of constituent structure tests I pointed to some other weak aspects of this approach.

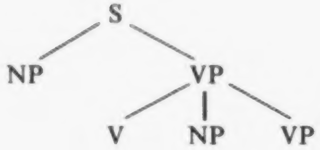
Firstly, Akmajian's claims that the structures proposed for gerundial PVCs and infinitival PVCs of the sentences in **a** and **b** represented as A and B respectively:

(a) I saw the moon *rising* over the mountain.
(b) I saw the moon *rise* over the mountain.

(A)



(B)



are supported by semantic facts (i.e. the difference of meaning between them is expressed by the difference in syntactic structure) does not seem to be well-justified in this case. The difference between the sentences in ***a*** and ***b*** lies in the aspect of the verb *rise*. In ***a*** the category of aspect has to be marked as incomplete, in ***b*** as complete. Thus, the semantic feature [± complete] of the aspectual category will in a natural way explain the difference between the discussed sentences. Unfortunately, Akmajian does not establish any necessary correlation between the semantic feature [− complete] and the PS-rule NP → NP VP or the semantic feature [+ complete] and the PS-rule VP → V NP VP. The introduction of those rules into the base complicates the categorial component to a considerable degree. This fact is also in conflict with Wassu's (1977) distinction between lexical rules and transformations, as well as with some basic assumptions of "core grammar".

Secondly, it seems that syntactic analysis in terms of constituent structure tests has a serious methodological defect, namely, it operates on derived structures, i.e. usually surface structures; (for more detail cf. Kopytko 1986).

Thirdly, the class of verbs analyzed as requiring PVCs is a heterogeneous one. It consists of the verbs of perception (*see*, *hear*, *feel*, etc.) as well as such verbs as *find*, *discover*, *catch*, *tape*, *film* and some others.

Fourthly, a logical error is involved in the constituent structure tests approach, which is connected with the fallacy of the following proposition: If X behaves as Y than X is Y.

Fifthly, due to the paucity of data the syntactic analysis in terms of constituent structure tests would be inconclusive and unjustified.

In Kopytko (1986) I argued for the NP-$\bar{S}$ with a zero complementizer structure for PVCs in Middle English as in the sentence in *a* analyzed as A:

(a) He herde hem speke.
(A) He INFL $[_{VP}$ herde $[_{NP}$ hem $[_{\bar{S}}[_{S}$ PRO $[_{VP}$ speke]]]]]

In Kopytko (1985) I claimed that PVCs in Modern English exibit the same i.e. NP-$\bar{S}$ structure as their ME equivalents. There is no direct evidence for the structure V-NP-$\bar{S}$ for PVCs in Modern English. However, there is some attested evidence in ME indicating that the subcategorization rule *see* –

NP – $\bar{S}$ was present in the lexicon of ME as in the sentence below:

(b) Egipciens sawen *the woman that she was ful fayre.*
(382 Wycilf Gen. 12)

analyzed as follows:

(B) Egipciens INFL [$_{VP}$ see [$_{NP}$ the woman] [$_{\bar{S}}$ that [$_{S}$ she was ful fayre]]]

If we accept Chomsky's *projection principle* of UG claiming that representations at each syntactic level (i.e. LF, (logical form), D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items the sentences in (d) can be claimed to be derived from clausal complements on the basis of the above mentioned principle:

(c) I sough him wirche.
(d) He hurde engles singe an hey.

They will be analyzed as in (A) above exhibiting the NP-$\bar{S}$ with zero complementizer structure. In Modern English, however, the projection principle has no synchronic data to operate on. As a result the structure of the infinitival complementation cannot be projected from that of the clausal complementation. Our hypothesis is that LF representation, D- and S-structure for Modern English PVCs are equivalent to those of Middle English by virtue of DPP i.e. *diachronic projection principle.* DPP projects the D-, S- and LF representation (in this case of ME PVCs on their equivalents in Modern English to assign them proper structure at those levels (i.e. identical with that of ME)). There are two conditions which constrain the operation of the DPP. The two syntactic structures involved in the process of projection should be 1) identical in LF-representation, 2) identical in S-structure as in the sentences below:

(e) (ME) He herde hem speke.
He heard them speak.

The hypothesis of DPP and its usefulness for syntactic analysis can be called into question if conclusive evidence could be demonstrated for the claim that the sentence in (e) above derive from different syntactic sources. (For more detail cf. Kopytko 1985).

2. The verbs of perception form a subclass of the verbs of sensory cognition (henceforth: VSC) that include verbs referring to the five senses employed in the process of human sensory cognition (i.e. sight, hearing, smell, touch and taste). That subclass consists of the following lexical items: *see, hear, smell, feel,* and *taste.* In Kopytko (1986a) I referred to the discussed subclass of VSC as resultative VSC. The reason for that was my attempt to account for the difference in meaning between the following sentences:

(a) I saw a little red house; vs. I looked at a little red house. The use of verbs *see* in the first sentence implies that the non-intentional act of perception (which may be represented by the sense-component [± Intent]) was cognitively successful by producing a result [± Result] i.e. a perception or image of the object of perception in the mind of the speaker-perceiver. In the case of the second sentence the result of the act of perception is irrelevant.

Accordingly, the two terms, i.e. verbs of perception and resultative VSC, are terminological equivalents referring to the same class of verbs specified above. I shall use the first term throughout this paper.

To analyze the meanings of particular classes of VSC (in Kopytko 1983, 1986a) I postulate the formulation of SRs i.e. semantic representations in terms of parameters characteristic of human sensory cognition as follows:

1) MANNER of PERCEPTION characterized by [± ACTIVE] or [± INTENSIVE]
2) RESULT (SUCCESS) of PERCEPTION characterized by the feature [± RESULT]
3) VOLITION of PERCEPTION characterized by the feature [± INTENT]
4) STATE of AFFAIRS EXHIBITED by the OBJECT of PERCEPTION [± STATE]

Accordingly, the SR of the following verbs: *see, hear, feel, taste, smell* may be represented as follows:

VERBS of PERCEPTION

$$\begin{bmatrix} \text{X SENSES Y} \\ +\ \text{RESULT} \\ -\ \text{INTENT} \\ -\ \text{ACTIVE} \\ \ldots\ldots \end{bmatrix}$$

As I shall present below the semantic features of the verbs under analysis will have their syntactic consequences i.e. they will determine certain syntactic structures and rule out others as ungrammatical.

2.1. The most intriguing aspect of PVCs in English is the infinitival and participial complementation, which will be discussed in turn below.

The sentences in (1) illustrate the infinitival complementation by means of the "naked infinitives", (for an account of the syntactic reasons for the existence of the "naked infinitives" in English cf. (Kopytko 1985)):

(1) (a) I saw him go out.
(b) I heard her sing all night.
(c) They noticed the boy run across the street.
(d) She felt something tickle her ear.

The syntactic structure of PVCs as presented above, on the basis of diachronic evidence, is the following: V-NP-$\bar{S}$. The Polish equivalents of the sentences in (1) manifest overtly the same syntactic structure i.e. V-NP-$\bar{S}$.

(2) (a) Widziałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ wyszedł.

(b) Słyszałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ śpiewała całą noc.

(c) Zauważyli, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ chłopiec przebiegł przez ulicę.

(d) Poczuła, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ coś załaskotało ją w ucho.

As can be seen the Polish PVCs are *że/jak* clauses (i.e. *that/how* clauses respectively).
In English PVCs *that/how* clauses are ungrammatical as in the sentences in (3):

(3) (a)* I saw him $\left\{\begin{matrix}\text{that}\\ \text{how}\end{matrix}\right\}$ he $\left\{\begin{matrix}\text{go out}\\ \text{went out}\end{matrix}\right\}$

(b)* I heard her $\left\{\begin{matrix}\text{that}\\ \text{how}\end{matrix}\right\}$ she $\left\{\begin{matrix}\text{sing}\\ \text{sang}\end{matrix}\right\}$ all night.

Viewed semantically, *że/jak* clauses in Polish represent the statement of a fact that was accomplished by the object of perception (cf. the sentences in (2) above). As in the case of their English equivalents the Polish sentences in (2) are aspectually complete (i.e. the Polish verbs are marked for the perfective aspect). Therefore, from now on I shall refer to them, semantically, as *factitive accomplished* clauses (henceforth: FA clauses). The clauses representing an incomplete event marked aspectually as [− complete] as in *I saw him going out*, where the infinitive is replaced by the present participle shall be referred to as *factitive-durative* clauses (henceforth: FD clauses). The question of the semantic difference between *że* and *jak* clauses in Polish will be presented below.

(1) (a) rewritten here as (4) may be rendered in Polish as (a-d) i.e. four semantically equivalent syntactic structures:

(4) I saw him go out.
(a) Widziałem, że /jak wyszedł.
(b) Widziałem go, że/jak wyszedł.
(c) Widziałem, że/jak on wyszedł.
(d) Widziałem go, że/jak on wyszedł.
(e) *Widziałem go wyjść.

The infinitival complementation in (4) (e) is in Polish clearly ungrammatical. The sentence in (b) is contradiction to that in (a) which possesses an overt (surface), in Polish redundant, pronoun as object in the matrix sentence. In (c) the surface pronoun functions as the subject of the embedded clause. Finally, in (d) both pronouns appear in the S-structure.

The structure in (b) seems to match perfectly the one I proposed for the infinitival complementation in English. Thus, (4) and (4) (b) can be represented, respectively, as follows:

(5) (a) I saw [$_{NP}$him [$_{\bar{S}}$that [$_{S}$PRO [$_{VP}$go out]]]
(b) Widziałem [$_{NP}$go [$_{\bar{S}}$że/jak [$_{S}$PRO [$_{VP}$wyszedł]]]

In English i.e. (5) (a) *that*-complementizer is obligatorily deleted in the S-structure. As I have pointed out above, it was not necessarily so in ME.

The sentences in (b) represent the participial complementation in English:

(6) (a) I saw him going out.
(b) I heard her crying.
(c) They noticed them stealing the car.
(d) She felt something tickling her ear.

Polish semantic equivalents of the sentences in (6) are the following:

(7) (a) Widziałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ wychodził.

(b) Słyszałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ płakała.

(c) Zauważyli, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ kradł ten samochód.

(d) Czuł, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ coś łaskotało ją w ucho.

As in the case of the infinitival complementation the participial equivalent in Polish constitutes *że/jak* clause, semantically the FD clause.

The syntactic structure of (7) (a) is identical to those of (5) (a and b):

(8) Widziałem PRO$_1$ [$_{\bar{S}}$że/jak [$_{S}$PRO$_1$ [$_{VP}$wychodził]]]
which is derived from:
(9) Widziałem [$_{NP}$go [$_{\bar{S}}$Comp [$_{S}$on INFL [$_{VP}$wyjść]]]]

The inflectional morphemes of tense and aspect will produce the required verbal form in VP i.e. *wychodził*; *że* or *jak* will be introduced into Comp position; and the coreferential pronouns may be optionally deleted as in (7) (a).

It seems that the structure in (9) also underlies the sentences in (6). Accordingly, (6) (a) may be represented as follows:

(10) I saw $[_{NP}$him $[_{\bar{S}}$that $[_{S}$PRO INFL $[_{VP}$go out$]]]$

After deleting the complementizer and attaching proper inflectional morphemes to the verb (marked for tense and aspect) the following structure is arrived at:

(11) I saw $[_{NP}$him $[_{\bar{S}}$ $[_{S}$PRO $[_{VP}$going out $]]]$

The English participial complements can be rendered in Polish by four, semantically equivalent, syntactic structures (as was the case with the infinitival complementation). Thus, (6) (a) rewritten here as (12) possesses in Polish the following syntactic variants:

(12) I saw him going out.

(a) Widziałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ wychodził.

(b) Widziałem go, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ wychodził.

(c) Widziałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ on wychodził.

(d) Widziałem go, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ on wychodził.

It is interesting to note that in questions and negations the complementizer *że* in Polish becomes *żeby* s in the following sentences:

(13) (a) Have you ever heard him tell a lie?
(b) Czy słyszałeś, *żeby* kiedykolwiek skłamał?
(14) (a) I have never seen her smiling.
(b) Nigdy nie widziałem, *żeby* się uśmiechała.

The use of *żeby* instead of *że* in negative and interrogative sentences changes the semantic focus of the indicative *że* from the stress on the factitive meaning of the embedded sentence to the idea of fulfillment of the fact in PVC both in FA and FD clauses. The PVC in (12) may be also rendered in Polish by a present participle focusing the semantic information on the duration of the activity represented by the complement clause as in (13):

(13) I saw him *going* out of his house.
(a) Widziałem go *wychodzącego* ze swojego domu.
(b)* Widziałem wychodzącego ze swojego domu.

(c)* Widziałem wychodzącego go ze swojego domu.
(d)* Widziałem go wychodzącego go ze swojego domu.

The syntactically correct structure is (13) (a) with a surface pronoun in the object position of the matrix sentence. The sentence in (13) (b), although grammatical, is semantically deviant due to the absence of a clearly specified referent. The structures in (c) and (d) are ill-formed syntactically.

2.2. The next type of PVC that I would like to deal with is the past participle complementation illustrated in (14):

(14) (a) I saw him *killed*.
(b) I have often seen it *done*.
(c) Have you ever heard Polish *spoken*?
(d) Have you ever seen a man *tortured*?

Polish semantic equivalents of the sentences in (14) shall be presented in turn below.

(15) I saw him *killed*.

(a) Widziałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ go zabito.

(b)* Widziałem go, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ go zabito.

(c)* Widziałem go, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ zabito.

(d)* Widziałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ zabito.

As can be seen *że/jak* clauses in (a) and *jak*-clause in (b) are grammatical structures in Polish; the remaining sentences are clearly ungrammatical. In this construction Polish requires an impersonal form of the verb in the complement as an equivalent of the English past participle. As in the case of the infinitival and participial (i.e. present participle in the FD-clauses) the English construction with past participle as PVC requires as an equivalent (in Polish) *że/jak* clause. Similarly, in the case of (14) (b) rewritten here as (15):

(15) I have often seen it *done*.

(a) Często widziałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ to robiono.

(b)* Często widziałem to, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ to robiono.

(c)* Często widziałem to, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ robiono.

(d)* Często widziałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ robiono.

The difference between the sentences in (14) and (15) is in (15) (b) where both clausal complements are ungrammatical. Due, probably, to the impersonal character of the pronoun in the matrix clause. Interesting cases to consider are the sentences in (16) and (17) below:

(16) Have you ever heard Polish *spoken*?

(a) Czy kiedykolwiek słyszałeś, $\left\{\begin{matrix}\text{*że}\\ \text{*żeby}\\ \text{jak}\end{matrix}\right\}$ mówiono po polsku?

(17) Have you ever seen a man tortured?

(a) Czy kiedykolwiek widziałeś, $\left\{\begin{matrix}\text{*że}\\ \text{*żeby}\\ \text{jak}\end{matrix}\right\}$ torturowano człowieka?

The syntactically correct structures in (16) and (17) are *jak* clauses referring semantically to the manner of performing the activity in PVC. Polański (1967:131) considers *jak*-clauses to be embedded questions functioning as complements of intentional sentences. (In this paper I refer to Polański's intentional sentences as factitive sentences). For obvious reasons, the indicative *że*-clause is ungrammatical in interrogative sentences (16) and (17). The structures with *żeby*-clauses are semantically deviant due to their focus on the fulfillment of the activity rather than on the manner of performing the activity required in the discussed examples.

The indicative forms of the sentences in (16) and (17) shall take both *że* and *jak* clauses in Complements as in (18):

(18) I have heard Polish *spoken* during the morning session.

(a) Słyszałem, $\left\{\begin{matrix}\text{że}\\ \text{jak}\end{matrix}\right\}$ mówiono po polsku w czasie porannego posiedzenia.

2.3. In the class of verbs under analysis including *see*, *hear*, *feel*, *smell* and *taste* there are three which seem to exhibit a specific syntacto-semantic behaviour as in the following sentences:

(18) (a) The soup *tastes* sour.
(b) Your hands *feel* cold.
(c) The flowers *smell* nice.

The sub-class of verbs discussed so far i.e. *hear*, *see* and *feel* has been represented semantically as (19) (a), for the verbs in (18) I propose (19) (b) as their semantic representation:

(19) (a) $\begin{bmatrix}\text{X SENSES Y}\\ +\text{RESULT}\\ -\text{INTENT}\\ -\text{ACTIVE}\\ -\text{STATE}\end{bmatrix}$ (b) $\begin{bmatrix}\text{X SENSES Y}\\ +\text{RESULT}\\ -\text{INTENT}\\ -\text{ACTIVE}\\ +\text{STATE}\end{bmatrix}$

The verbs in (18) represented as (19) (b) are marked positively for the feature [± STATE] characterizing the state of affairs exhibited by the object of perception i.e. the object of perception requires PVCs referring to states not to activities. In Kopytko (1983) In refer to such verbs as Existential Verbs of Sensory Cognition. Syntactically those verbs require adjectival complementation that on the semantic plane expresses the state exhibited by the object of perception.

Polish equivalents of the sentences in (18) are the following:

(20) The soup *tastes* sour.
(a) Ta zupa smakuje kwaśno.
(b) *Ta zupa smakuje kwaśna.
(c) Ta zupa ma kwaśny smak.
(d) Czuję, że ta zupa $\left\{\begin{array}{l}\text{jest kwaśna}\\ \text{ma kwaśny smak}\end{array}\right\}$
(e) *Czuję, jak ta zupa $\left\{\begin{array}{l}\text{jest kwaśna}\\ \text{ma kwaśny smak}\end{array}\right\}$

(21) The flowers *smell* nice.
(a) Te kwiaty ładnie pachną.
(b) *Te kwiaty pachną ładnie.
(c) *Czuję, że te kwiaty są ładne.
(d) Czuję, że te kwiaty mają ładny zapach.
(e) *Czuję, jak te kwiaty mają ładny zapach.
(f) Czuję, jak te kwiaty ładnie pachną.

(22) Your hands *feel* cold.
(a) *Twoje ręce czuję zimno.
(b) *Twoje ręce czuję zimny.
(c) Czuję, że masz zimne ręce.
(d) Czuję, że twoje ręce są zimne.
(e) *Czuję, że twoje ręce mają zimny dotyk.
(f) *Czuję, że twoje ręce są zimne w dotyku.

(g)* Czuję, jak twoje ręce są zimne.
(h)* Czuję, jak masz zimne ręce.

As can be seen, syntactically, the analyzed sub-group of verbs in Polish seems to be more complicated than its English equivalents. The main conclusions I can draw on the basis of the data in (20, 21 and 22) are the following: *firstly*, the Polish verbs do not take adjectival complements (cf. (20) (b), (21) (b) and (22) (b)); *secondly*, the verbs *taste* and *smell*, in Polish *smakować* and *wąchać*, require an adverb as complement instead of an adjective (cf. (20) (a) and (21) (a)) on the other hand, *feel*, in Polish *dotykać* requires *że*-clause as a complement (cf. (22) (c) and (22) (d)); *thirdly*, *smakować* and *wąchać* take both the adverbial and clausal complements in contradiction to *dotykać* that takes only the clausal one; *fourthly*, *smakować* takes only *że*-clauses as complements whereas *wąchać* admits both *że* and *jak*-clauses in that function; *fifthly*, all three verbs *smakować*, *wąchać* i *dotykać* admit of clausal complementation.

An interesting thing to notice is the semantic parallel between the adjectival and *że*-clauses complementation (expressing the meaning in terms of perceived states and properties or qualities) on one hand, and the adverbial and *jak*-clauses complementation expressing the meaning in terms of (from the point of view) the manner of perceiving of the states and qualities of the object of perception on the other; (The latter admitted in Polish but not in English).

On the basis of what I have presented above, I am inclined to claim that the sentences in (20), (21) and (22) represented syntactically in the S-structure as (23):

(23) The soup *tastes* sour.

$[_{NP}$ the soup $[_{VP}$ tastes $[_{S}$ t $[_{AP}$ sour$]]]]$

derive from structures with clausal complements, in this case V-$\bar{S}$ as represented in (24):

(24) $[NP^{e}]$ $[_{VP}$ tastes $[_{\bar{S}}$ that $[_{S}$ the soup $[_{AP}$ sour$]]]]$

The application of Move-d and $\bar{S}$-deletion will produce (23) above. In English $\bar{S}$-deletion is obligatory, in Polish it may be optional (cf. the data in 20, 21 and 22). The embedded phrase is a "small clause", i.e. a clausal structure lacking INFL and the copula. $\bar{S}$-deletion is obligatory for "small clauses" as contrasted with infinitives (cf.Chomsky 1981:107). In Polish there is an optional copula in the predicative to produce the sentences in (20) (d) and (22) (d). It seems to me that there is also a copula in the predicative, in English, which is deleted obligatorily in the S-structure.

Admittedly, the V-$\bar{S}$ structure appears in the the S-structure of *see, hear, smell* and *taste* as in the following examples:

(25) (a) I saw *how it was done.*
  (b) I heard *how she sang.*
  (c) I smelled *how badly it stunk.*
  (d) I tasted *how sweet it was.*
  (e) I will see *what I can do for you.*
  (f) Let us see *who it is.*

For those who accept Chomsky's *projection principle* (cf. Chomsky 1981) the sentences in (25) constitute an independent of the presence of V-$\bar{S}$ structure in the lexicon of perception verbs. It is interesting that verbs of "indirect perception": *see, hear* and *feel* exemplified in (26) also require clausal complementation i.e. V-$\bar{S}$ structure:

(26) (a) I see *that you are in trouble.*
  (b) I heard *that she sang worse than ever before.*
  (c) I could feel *that she was standing near me.*

The acquisition of the mental state (perception) expressed by the verbs in (26) is not direct but inferred by means of indirect evidence.

I would like to conclude this paper with an analysis of *time*-clauses as PVCs, which I have not presented in previous publications. I shall focus on two basic structures of temporal complementation V/adv/$\bar{S}$ and V NP $\bar{S}$. The sentences in (27) illustrate the former:

(27) (a) She could see *when he did it; not until later did she lose her sight.*
  (b) I heard well *before the accident.*
  (c) I could *smell* and *taste* better *when I* was younger.

Semantically the verbs of perception in (27) refer to the general ability of perceiving. Polish equivalents of (27) are respectively as follows:

(28) (a) Widziała, $\left\{\begin{matrix}\text{kiedy}\\ \text{jak}\end{matrix}\right\}$ on to zrobił; dopiero później straciła wzrok.
  (b) Słyszałem dobrze przed wypadkiem.
  (c) Miałem lepszy węch i smak $\left\{\begin{matrix}\text{gdy}\\ \text{kiedy}\\ \text{jak}\end{matrix}\right\}$ byłem młodszy.

As can be seen Polish and English V/adv/$\bar{S}$ structures match precisely. The V/adv/$\bar{S}$ structure in temporal clauses may be taken as an input for the *projection principle.*

The sentences in (29) represent the V NP $\bar{S}$ structure in temporal clauses:

(29) (a) She felt it *when he tickled her ear.*
(b) I heard her *when she sang.*
(c) I saw him *when he went out of his house.*

The same syntactic structure is exhibited by Polish equivalents of (29):

(30) (a) Poczuła, $\left\{\begin{array}{l}\text{kiedy}\\ \text{jak}\end{array}\right\}$ połaskotał ją w ucho.
(b) Słyszałem ją, $\left\{\begin{array}{l}\text{kiedy}\\ \text{jak}\end{array}\right\}$ śpiewała.
(c) Zobaczyłem go, $\left\{\begin{array}{l}\text{kiedy}\\ \text{jak}\end{array}\right\}$ wyszedł ze swojego domu.

Czuć, the Polish equivalent of *feel* in (30) (a) does not require a surface object in the matrix sentence.

2.4. Methodologically, the most intriguing problem connected with the temporal complementation of PVCs is the operation of Chomsky's *projection principle*. By *projection principle* the role of the categorial component of the base is reduced to minimum because representations at each syntactic level (i.e. LF, D – and S – structure) are projected from the lexicon, observing the subcategorization properties of lexical items.

If one adheres to such a strong version of the *projection principle* (unrestricted semantically) one has to admit on the basis of the sentences in (29), that V NP $\bar{S}$ structure is present in the subcategorization rules of perception verbs and may be used as an input for the operation of the *projection principle*. That is, the V NP $\bar{S}$ structure that I proposed for the D-structure of PVCs (i.e. infinitival and participial) on the basis of historical and contrastive evidence is also confirmed by the *projection principle*, a principle of UG; or; or rather the other way round, the validity of the *projection principle* is corroborated by an independent diachronic and contrastive (Polish-English) evidence.

To recapitulate the main points again. The analyzed types of complementation (in PVCs) are reducible to clausal complementation of two basic structures (a) V /adv/$\bar{S}$ and (b) V NP $\bar{S}$ (both in English and Polish). The adduced diachronic and contrastive evidence as well as a principle of UG seem to support the claim (above). In Polish the structures in (a) and (b) represent both the D- as well as S-structures in all the discussed PVCs. In English the structures in (a) and (b) represent mainly the D-structure realized on the surface by the infinitival, participial (both present and past) and adjectival complements, although they sometimes appear in the S-structure as well (cf. (25), (26), (27) and (29) above). The main theoretical question that should be raised in connection with the present paper is the status of contrastive analysis as evidence in the syntactic argumentation. As the above presented contrastive analysis of PVCs in English and Polish seems to indicate all types of complementation are reducible to (or derivable) from a universal base (which is in agreement with the major claims of a grammar (e.g. Chomsky's 'core grammar')) theoretically based on the linguistic universals and principles of UG. The analysis I have presented here emphasizes the D-structure similarities of contrasted languages, expressed in universal terms. It seems that syntactic analysis should rely (and require) at least three types of arguments:

1) from the principles of UG, 2) from dischronic evidence, and 3) from contrastive evidence. Both diachronic and contrasttive evidence may be considered as independent evidence supporting and corroborating the claims of UG.

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SOME REFLECTIONS ON IDEAS AND RESULTS OF FEMINIST LINGUISTICS

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The feminist trend in western linguistics is an interesting phenomenon reflecting some non-marxist interpretations of the dichotomies "language and thought" and "language and society", the most popular being the so called Sapir-Worf linguistic relativity principle and the Bernstein language deficiency hypothesis.

The feminists slightly bend Worfian ideas (Worf 1964) to prove that language was made by men and is now used as an instrument of social oppression of women. Working on the assumption that language can influence social relations (Bernstein 1962) some representatives of the more extreme fringe in the feminist movement advocate a number of sweeping measures to rework the traditional forms to create women-centred language and thereby eliminate social injustice to women (Spender 1980).

Such ideas cannot be dismissed as amateurish. They are consonant with some philosophical concepts, for instance, those of J. Habermas (1969), who believes that removal of the possibility of communication failure between members of different social groups could be a way to social harmony.

On the one hand, the feminist movement has agitated some lexicological problems. One of them is the question of desemantization of "-man", and "-woman" as elements of words like "chairman", "charwoman", etc. Until recently these elements have been treated as suffixes, but the emergence of "chairperson", "salesperson", etc. (as well as the use of "salesman" and "saleswoman") and at least one known attempt to change the name "Cooperman" to "Cooperperson" make one think again. The writers and speakers who use "chairperson", "salesperson" and the like seem to be conscious of "-man" and "-woman" as words, retaining their original meanings. Besides, the feminists argue that subjects in experiments associate "chairman" and similar words with males and not females.

On the other hand, there might be doubts as to the prospects for the new type of word-formation with the help of the element "-person" for at least to some people it is a "barbarous neologism" (Miller and Swift 1979). The suggestion to use words like "chairperson" shows that there is a lack of agreement among feminists because many of them started by complaining about the absence of female gender counterparts for "doctor", "writer", "lawyer", etc., claimed to be predominantly associated with males (Mackay 1983:43).

There is an inconsistency here: some feminists claim that English is a patriarchal language making women socially invisible through the use of the names of professions associated with males and therefore imply that there is a need for names referring to females in these professions. Others call for a unisex language free of sex-marking words.

One gets the impression that some feminists see language as text. It is true that texts can be edited, but language is not likely to be altered by a social group, the less so within a short spell of time.

Such ideas are both utopian and pernicious as language plays a significant role in the shaping of human consciousness and the power of words is greatest on the level of common sense operating with elementary concepts and popular ideas. Therefore, moves for language reforms substitute secondary causes for major ones and may distract the people from the struggle for social change.

Let us now have a closer look at the linguistic aspect of feminists' work.

One major methodological error of the feminists is lack of discrimination between language and the use of language units in speech. Language serves all social classes equally well and cannot by itself be an instrument of social oppression. Speech may have distinct class colouring because individuals participating in a particular act of communication have social characteristics, such as the level of education, social status, social roles, etc., which are in the long run determined by the individual's relation to the means of production. The choice of language means and pragmatic connotations which individuals ascribe to them depend on their communicative intentions and goals. The goal of communication can be understood in a narrow sense as elicitation of some verbal or non-verbal reaction, or, in a broader sense, as ideological influence (Rapoport 1962). Consequently, in the broader sense communication goals can be determined by the social position of the individual. For power groups communication goals, besides many others, can be manipulation of the minds of ordinary people and the camouflaging of various forms of social oppression via language means. To illustrate the latter one can mention a case where a U.S. federal court found a major airline guilty of discrimination against its female flight attendants: by calling women 'stewardesses' and calling men doing the identical job "pursers' the company had camouflaged unequal pay and promotion schedules (Miller and Swift 1975:161).

Despite the flaws in their methodology interactionists and feminists have uncovered a number of laws underlying verbal behaviour. For example, American feminists have traced certain differences in female and male speech behaviour patterns which often cause conversation failure. One of them is that minimal responses of American females have mainly contact functions while the similarly structured male responses signify agreement. Unaware of this difference males often think that females do not have or, perhaps, withhold their opinions while females consider their male listeners inattentive or impolite (Maltz & Borker 1982).

It should be noted that in the Soviet Union interest in sex role differentiation is rather recent and has so far been actively displayed only by social psychologists.

The Soviet experience will undoubtedly be of interest because in this country we have the longest record of constitutionally guaranteed equality of men and women. The emancipation of women has resulted in a parallel existence of the traditional sex role stereotypes and of new patterns of behaviour. According to the findings of Soviet psychologists a significant number of women display behavioural patterns characteristic of the traditional male stereotype (Kon 1982:80). It appears that the percentage of females with predominantly male stereotype characteristics is much higher than that of males with female stereotype characteristics. (Kagan 1984:111).

If one is consistent in one's simplistic approach to the relations between language and social phenomena, one should expect that the near elimination of sex-based division of labour and complete sex equality must result in the elimination of sex differentiation in verbal behaviour.

In this paper we report some results of pilot experiments in a rural western area of the Ukraine.

One experiment involved 50 Ukrainian speaking girls and 22 boys in their last year at school. They were asked to respond to 10 situations in a questionnaire designed to elicit information on some points of grammar and vocabulary.

When asked what they thought was the most prestigious and the least prestigious trade or profession the girls named 32 of the former and 29 of the latter. All the 32 prestigious professions were represented by nouns of the masculine gender and the least prestigious – by 11 nouns of the masculine and 18 of the feminine gender. When asked to name the trade or profession of their choice the girls responded with 38 nouns of the masculine gender and only 6 nouns of the feminine gender. When speaking about the most prestigious or the trades and professions of their preference the girls used the masculine gender even with nouns admitting of the feminine gender, for instance: вчитель (teacher), телефоніст (telephone operator), художник (painter), кранівник (crane operator).

The boys used only one noun in the feminine to name an unprestigious job – прибиральниця (cleaner), the rest of the responses contained masculine nouns.

On the one hand, this is to some extent consonant with statements by western feminists that the names of prestigious trades and professions in English, for example, are associated mainly with males and the unprestigious with females. On the other hand, clearly even in Russian, which has a grammatical category of gender, feminine nouns are the marked forms, while masculine nouns can be used to refer both to men and women, and, therefore, tend to behave as unmarked forms. Another point: some nouns (most of them borrowed from other languages) in Russian can have feminine gender markers but then they acquire derogating connotations or are used only colloquially or in substandard speech. For instance, to show one's respect one would say Вона хороший лікар but not Вона хороша лікарка for "She is a good doctor" (the same holds for formal interactions). It is generally known that in the Soviet Union women are a majority in this highly prestigious profession. These and other data point to the fact that even more open areas of language such as the lexical system are not directly affected by social change.

In four situations the informants were to make requests. It should be pointed out that on average the girls used more polite forms of request which agrees with one of the feminine stereotype characteristics. Interestingly enough, both boys and girls used more polite forms when addressing a person of the opposite sex, which confirms the pragmatic observation about the distancing function of the more polite forms. On the other hand, when confronted with the situation where a person spills his or her soup onto one's uniform in the school dining room, the informants showed another pattern. Although boys on the whole used more rude expressions than the girls, they showed more politeness if the perpetrator was a girl. With the girls it was quite the opposite – they were more aggressive if the perpetrator was a boy.

In the other experiment the field worker selected 3 girls and 3 boys of school-leaving age and left them to chat while the cassette recorder was switched on. The purpose was to compare the data on interactional strategies of Ukrainian males and females with some American data (Fishman 1983).

The boys in the Ukrainian experiment used more utterances than the girls. Unlike the females in the P. Fishman experiment, the Ukrainian girls did not differ significantly from the boys in the number of questions, nor in the number and function of the minimal responses. As for topic initiation, the Ukrainian girls made 26 moves, and the boys 21, while the share of unsuccessful topic initiation moves with the girls was only slightly higher than with the boys (15% against 9.5%).

There was no difference in the relative frequency of interruptions of the conversationists of the opposite sex. Both the boys and the girls interrupted the speakers of the same sex less than the speakers of the opposite sex.

The length of recorded conversation is much smaller in our case, and the ages and degrees of intimacy of the participants are different from those in the English language experiment reported by P. Fishman, yet on the strength of these results it would not be far-fetched to say that changes in the social position of the sexes are followed by changes in their interactional behaviour.

Nevertheless, our personal interactional experience suggests that certain differences are persistent enough. Men in Russia and in the Ukraine, like men in the English speaking world, ask questions to get information and not just to start a conversation or to keep it going. Even in our experiment the boys differed from the girls in that they used more straight declarations of fact and expressed their opinion or volunteered advice more often than the girls while the girls used more expressions of emotion. We might tentatively suggest that the more persistent differences should be explained by the fact that even in case of equality of sexes there still remain certain differences in their socio-economic, hence communicative roles, which stem from the physiological and psychological differences between males and females. Due to the nature and functions of language it can respond to social changes only with a considerable lag in time. On the other hand, verbal behaviour is more susceptible to social differentiation or social change.

The principles underlying interpersonal contacts are apparently the same for all humans. The knowledge of such principles is naturally not sufficient for changing society, but dissemination of this kind of knowledge can promote better understanding between individuals of the same sex or of the opposite sexes engaged in all sorts of joint activity and facilitate interpersonal contacts between representatives of different social groups, and groups and individuals with different ethnic and cultural backgrounds.

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ON THE ANALYSIS OF MODAL MEANINGS IN SPOKEN GERMAN OF NATIVE SPEAKERS AND POLISH LEARNERS

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In this report we refer primarily to the aims of the project within which this work was carried out and in some detail to preliminary work such as data collection, transcription, working methods, etc. Within the project work a two-year longitudinal study is being carried out which aims to document the acquisition of German modal means by Polish natives. The data collection, which was begun in summer 1985, probably will be completed in spring/summer 1988. At the end of the study we are planning a comparison between our data/results and those of other studies concerned with the acquisition of German by other than Polish non-native German speakers (for example Italians in the ESF project in Heidelberg).

With respect to the results of analysis in the present study we must concede that instead of a large amount of typed and transcribed data we still have no representative results at our disposal, because nearly all the work before February 1987 had to be done by volunteers. Therefore, what we will present with respect to an analysis of modal meanings in this paper is empirical only to a certain degree. Our analysis will deal primarily with semantic and pragmatic aspects of modality. On the one hand we are attempting to describe the degree to which learners express modal meanings by use of discourse rules, contextual knowledge and shared world knowledge. On the other hand we are attempting to describe sequences in the acquisition of modal means, their frequency and their meanings.

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We obtained (and still are doing so) data in natural and (as far as the technical equipment of a video laboratory permits) in quasi natural communication situations. Each recording consists of five parts, which we define as discourse types as follows:

a) free conversation
b) narratives/reports
c) instructions
d) attitudes/opinions
e) problem solving

From time to time we introduced a discourse type we call

f) intention and desire (aims)

Our sample consists of 15 Polish learners at the beginning of the period of data collection and of 8 Polish learners at the present time. There are equal numbers of males and females. They are between 20 and 40 years old. Conversations with the learners were tape recorded every month from the beginning up to the present time. The first interview with each informant took place during the first year of his residence in Berlin.

Because we have obtained so much data sofar that it would be impossible to analyze them within an entire lifetime if we did not enlist the aid of computer, we are entering all our transcribed data into a computer to facilitate the analysis.

Proposal for Analysis

One of the first important steps in an extensive analysis of modality in spoken language in our opinion seems to be the development of a model for analysis which considers the descriptions in recent empirical studies on modality on the one hand and on the other hand considers modal categories of linguistic theory which have been developed on the basis of formal and modal logic.

A synthesis of both is not completely unproblematic. Empirical studies in general deal with modal means such as modals or modus (e.g. Dittmar 1979; Brünner/Redder 1983). In theoretical approaches in general categories have been developed which may serve excellently for the description of formal languages but, as far as we can see, cannot simply be applied to spoken natural languages (cf. e.g. Lyons 1977/83; Rescher 1974).

Our aim is not to prove, for example, the truth, necessity or possibility of utterances. We define the use of modal means as marking speakers' attitudes (in a broader sense) as to the content of their utterances or sentences. Therefore what we are investigating are the positions of speakers with regard to their opinions about uttered sentence contents.

The Modal Categories

For the present we assume five modal categories, i.e. model meanings, which we shall describe in the following to some extent:

Category 1 (Probability to which the content of an utterance is considered to be true).

This category includes at least two types of modality we know from the theoretical literature: alethic and epistemic modality. We believe this combination to be justified, because for the present we assume that it is impossible to differentiate whether a speaker is referring by an utterance to the truth of it (cf. alethic modality in Rescher 1968) or whether he is referring to his knowledge or beliefs.

We are not justifying our assumption that such a differentiation is a problematic one in spoken language simply by claiming that spoken language may be (or is) vague. Rather we assert that speakers who refer to the truth of utterances do not principally refer to it in the logical sense of true or false but even more, as our thesis claims, in the sense of believing it to be true (für wahr halten). Further we may say that an utterance of the kind 'it is true that p' always contains the knowledge about p: 'I know that p' (cf. Eisenberg 1986). For this reason it is a contradiction to say in the same context

1. I know that p

and

2. it is not true that p.

Even though it is uncertain to what extent truth and knowledge in terms of spoken German may be considered as semantically equal, we come to the conclusion that with regard to the possibilities of gradation in category 1 described above they can be assigned to the same degree of probability.

The degree of probability is regarded as the measure of a speaker's 'taking (the content of an utterance) to be true'. The probability that p true (or rather: is taken to be true) is defined by values between 0 and 1. For the present we assume that only the two extremes (0 and 1) can be measured exactly.

If a proposition in our eyes is claimed to be absolutely probably true (= absolutely true) we show this by

* probable that p true
(* wahrscheinlich, daß p wahr).

If we find that a speaker claims that there is absolutely no probability that p true we show this by

– probable that p true
(– wahrscheinlich, daß p wahr)

Further we define a middle value (o probable that p true) that marks that a speaker neither claims the content of an utterance to be true nor to be untrue. At least we assume to have evidence that there are two values with high frequency in spoken language which are near the extremes but are not identical with them. The one who claims to be next to '* probable that p true' we show by '+ probable that p true'. The one next to '– probable that p true' is shown by '/ probable that p true'.

We suspect that the various degrees of probability in German may be expressed by the following means

* probable that p true	ich bin sicher, daß p (I am sure that (of) p) ich weiß, daß p (I know that p) es its wahr, daß p (it is true that p)
+ probable that p true	ich glaube, daß p (I believe that p) wahrscheinlich p (probably p) ich vermute, daß p (I suppose that p)
o probable that p true	es ist möglich, daß p (it is possible that p) ich weiß nicht, ob p (I don't know whether p) vielleicht p (perhaps p)
	ich glaube nicht, daß p (I don't believe that p)

/ probable that p true	ich vermute nicht, daß p (I don't expect that p) unwahrscheinlich p (improbable p)
– probable that p true[2]	es ist unmöglich, daß p (it is impossible that p)

Finally we do not exclude the possibility that category 1 is relevant either explicitly or implicitly for all utterances. That means that in an utterance without explicit means from category 1 the assumption of its 'being true' is implicated. In imperatives possibly the validity of a mand (order, instruction, ...) being true is implicated. Questions may have as one of their functions, the function of referring to a certain indecision of the speaker with regard to his 'taking to be true' of an utterance's content (similar to: 'I do not know whether p' (cf. Doherty 1985).

With the exception of category 4 which we still wish to describe with examples of some speakers' utterances, we shall describe the other categories only in an abridged version:

Category 1a

In this category we also find occurrences of the 'taking to be true' of the utterance's content. But these are not identical with those performed by a speaker at the time of speaking. In category 1a the speaker refers to utterances of third persons or to his own estimation at a point different from the time of speaking.

Category 2 (capability of action/Fähigkeit zu Handlungen)

It refers to a speaker's estimation about the ability of an agent to do certain action. It is differentiated by the following indications of degree:
A + capable of doing y (A + fähig, y tun)
A o capable of doing y
A – capable of doing y

Category 3 (desire and intention/Wunsch und Absicht)

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[2] Note the importance of negation. By negation of 'p' at the degree of '* probable' this degree is not further related to 'p' but to '–p'. That means that we deal with a new state of affairs; or more precisely: the probability '– probable' is assigned to the existence of 'p'. The probability which a speaker attributes to a certain state of affairs (called 'p') changes with regard to the same state of affairs into another degree if p is marked by neg: A state of affairs which would be '* probable' without neg becomes '– probable' with the negation. A state of affairs which would be '+ probable' without neg becomes '/ probable'. Only at the degree 'o probable' there is no important change of the probability if we compare 'p' to '–p'.

Here we are concerned with the representation of desires and intentions or – more general – the representation of the intensity by which some person A strives for a goal.

A + to strive for G
A o to strive for G
A – to strive for G

Category 4 (necessity of actions and states)

It refers to the degree of necessity a speaker attaches to the carrying out of a certain action (normally by a certain actor). We differentiate between three areas of gradation:

+ necessary to do y (S states necessity for A to do y)
o necessary to do y (S states no necessity for A to do y)
– necessary to do y (S states prohibition for A to do y)

This type of modality is similar to some representations of the deontic modality where there is described

+ necessary as "necessary" or "obligatory" (geboten)
o necessary as "possible" or "permitted" (erlaubt)
– necessary as "impossible" or "prohibited" (verboten)

(cf. e.g. Lyons (1983); v. Wright (1951)). But we do not restrict this modality to the necessity of actions (Notwendigkeit von Handlungen) under the aspect of social expectations. Further we include the necessity of certain states of affairs.

Actions and states of affairs are necessary, possible or impossible with regard to the achievement or avoidance of certain aims (e.g.: Du mußt groß sein, um über die Mauer schauen zu können).

In our data base we have two discourse types we call 'instruction' and 'problem solving'. In the first the informants have to give instructions to another person. The instructions are supposed to lead to the achievement of a certain goal. In the second case the informants have to look for some solution that leads in a fictitious situation to the achievement or avoidance of a certain result. In both cases we may find necessary (obligatory), possible (permitted), and impossible (prohibited) actions or states in the sense that they are necessary, possible or impossible conditions for the achievement of the goal in view of the chosen solution.

Some remarks on the expression in category 4

Before we begun the preliminary data analysis with regard to type 4, we presumed that in elementary learner varieties the necessity of performing actions is seldom made explicit and only by a few means. We assumed that the learners would use pragmatic means, contextual knowledge, common world knowledge and discourse rules extensively. We presumed that advanced learners would use modal means in a very explicit way, although perhaps with a restricted variety of means. We expected the German informants to be the most explicit with regard to the necessity of actions in view of certain goals (by means such as the 'imperative' and the German modals ('müssen', 'sollen', 'können' und 'dürfen'). As far as we can see from a small data base which until now had been viewed we must formulate the following hypothesis: – Learners of elementary varieties very often use pragmatic means like contextual knowledge (the goal to attain is known and the roles are allocated). In elementary varieties we often find in the beginning of a single instruction "bitte" (please), which possibly signals that in the following utterance we are concerned with a (de)mand to some action that is necessary to achieve the goal.

– As expected the advanced learners often used modal means to express the necessity of actions.

– German speakers, however, used to an unexpected extent discourse rules or contextual knowledge. And they used them more often than any advanced learner did.

From this we presume that in instructions in natural languages there exists some basic rule which demands that normally the aim has to be mentioned and the roles of the participants have to be regulated in such a way that they know who is giving instructions which necessarily have to be carried out and who is the one who carries them out. After this it is unnecessary (and even seems to be unusual) to mark each action as necessary for the achievement of the aim. That means naming the action may be sufficient to understand its necessity of performance in the context. From this we derive that instructions generally have a structure that contains the naming of a certain goal, the arrangement of role allocation and single instructions (possibly the naming of subordinated aims as well).

The structure of a complex instruction may be described by trees where the goal 'G' is in the top line to which all necessary actions are related from lower lines. The actions themselves may be complex ones or even subordinated aims to which there are related less complex or single actions (in some cases may be 'states of affairs') as well.[3]

In table 1 we attempted to describe the tree structure of the complex instructions of two informants (one German and one Pole) who advised another German speaker to prepare a package to be sent to Poland. As we see, the Polish speaker hardly mentions necessary instructions which are unrelated to another complex one or to subordinated aims different from 'G', while most of the German informant's instructions refer to single actions which lead directly to 'G'. We cannot offer any explanation for these differences in the structure of the two instructions. It is possible that the differences are caused by some inherent language use phenomena, which means that, for example, we cannot exclude the possibility that for the non-native informant the instruction seems to be simpler if he divides one complex structure into different less complex ones. But we also cannot exclude the possibility that the different structures are caused by individual differences between the informants. We have to take into account that the informants are different in age, sex, and sociocultural background.[4] Unquestionably we cannot presume that an analysis of these two informants' modal means expressing the necessity of actions to be carried out is representative in some way. But with regard to the hypothesis mentioned above we can find some support for the assumptions about the use of this means in advanced learners' and in native speakers' varieties.

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[3] See table 1.

With regard to the modal means used by both informants we might say that the advanced learner is performing only four instructions without the explicit use of these means. And we cannot exclude the possibility that one of these cases is just an attempt to perform some expression of the kind 'und so weiter': "so und noch weiter alles". In 15 of a total of 25 mands the learner uses the modal 'müssen', four times he uses the modal 'können' and two times the imperative. – In 46 mands the German informant uses the modal 'müssen' only four times, 'können' two times, 'sollen' one time, and the imperative five times. Most of the mands have the form 'inflected verb + pers. pronoun'. Nine of these occurrences are combined with the temporal adverb 'jetzt'. In 12 sentences the inflected verb is related to a pronoun of former sentences. Two times we find the structure 'pers. pron. + verb', one time an infinitive construction, and one passive phrase. That means that in 46 sentences which are related to necessary actions or states of affairs with regard to the achievement of the goal, only 12 contain one of the expected modal means. These results are what we claim to be support for our hypothesis mentioned above.

Prospects

In the last chapter we tried to show how an analysis of natives' and learners' utterances may look when being related to meanings as described in 'category 4'. Even though such an analysis may lead to some valuable results we have to stress that an extensive analysis in one modal category cannot be exhaustive if others (especially 'category 1') are not included, because in the whole modal meaning of sentences or utterances we nearly always find some interrelationships.

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[4] The Polish speaker is about 35 years old, male and skilled manual worker. The German informant is about 30 years old, female and has a teacher's degree.

Our present approach is to describe the semantic structure of modality in learners' utterances (and to some extend in natives') during the acquisition process. Further we want to receive some knowledge about the relations between the (semantic) modal structure and the syntactic structure of sentences.

We are trying at the present to relate the utterance, its syntactic (phrase-) structure and its modal structure in columns as follows:[5]

utterance[6]	phrase structure	modal structure
1. Öffne doch bitte mal die Plastiktüte	VP (V_{Imper} + $Part_1$ + $Part_2$ + $Part_3$ + NP (Art + N))	$1^{*\sim}$ > 4+Imper > p
2. Jetzt müßte da noch ein Einschnitt sein	Adv_1 + $MV_{Konj.}$ + Adv_2 + Part. + Art + N + $V_{Infin.}$	$1/_{Konj.}$ > 4+müssen > p
3. Die beiden Laschen die müssen in die Kerben	NP_1 (Art + Num + N) Pron + VP (MV + Prp + NP_2 (Art + N))	$1^{*\sim}$ > 4+müssen > p
4. Zuerst dieses Teile von dir muß bei mir kommen, ich glaube	Adv + NP_1 (Dem. Pron. + N) + VP_1 (Prp + Pers. Pron + MV + Prp + Pers. Pron + V_{Infin}) + NP_2 (N) + VP_2 (V)	1+glaube > 4+müssen > p

After having analyzed larger segments of the data in this way, computer programms like Romuald Skiba's "Text-Wolf" may help us to find in which frequencies certain kinds of modal structures occur, whether they are related to certain kinds of discourse or test and whether certain kinds of modal structure always (or possibly never) cooccur with a certain kind of syntactic structure.

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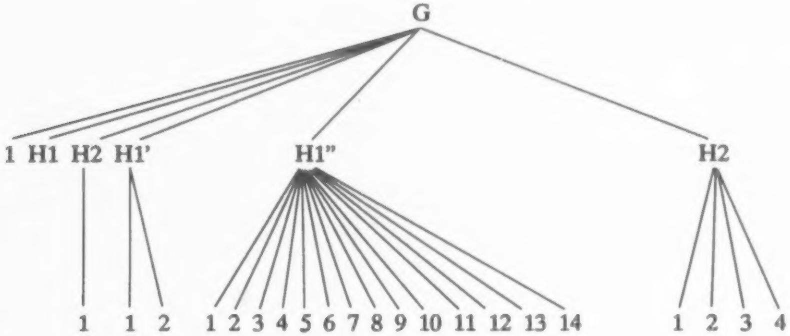
[5] The classifications in the columns are not final. Similar to the way we accept an implicit occurrence of category 1 we can always do this with category 2 (and maybe with 3) if we find some occurrence of category 4 which is related to a mand. This is because the person giving the mand always assumes the hearer's ability to carry it out.

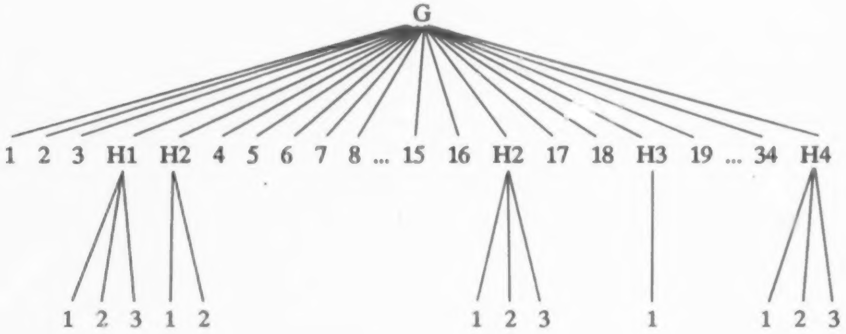
[6] 1-3 are from the German informant, 4 from the Pole. Modal meanings are indicated by the figure of the category and the symbol of degree. E.g. '1*' means '*probable' in the category 1. '~' means that it is an implicit meaning. '>' is a symbol to mark hierarchy: all occurrences at the left of '>' are relevant for all occurrences at the right of '>'.

Table 1

Pol. informant



Germ. informant



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THE WRITING PROCESSES OF ADVANCED FOREIGN LANGUAGE LEARNERS IN THEIR NATIVE AND FOREIGN LANGUAGES: EVIDENCE FROM THINKING ALOUD AND BEHAVIOR PROTOCOLS

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This paper reports on the research I carried out to identify the course and structure of the writing processes of the skilled, average and unskilled student writers composing expository prose in their native and foreign languages.

GOALS OF THE STUDY

1. To test the Cognitive Process Theory of Writing proposed by Hayes and Flower (1980)[1] insofar as to establish the course and structure of the writing processes of advanced foreign learners of English composing expository prose both in their native and foreign languages;
2. To identify differences between the writing processes of skilled and unskilled writers in both languages.

METHOD

To gather a maximum amount of information about the writing processes of advanced foreign learners writing in their native and foreign languages, I decided to use a combination of input-output and process-tracing methods of exploration.[2] Subjects composed aloud in Polish and English[3] and their verbal reporting of concurrent thought processes was taped for the purpose of drawing a verbal protocol.[4] Apart from asking them to think aloud, I observed them during their writing to draw a behavior protocol.[5] After my subjects had completed their writing tasks, I analyzed their written products in both languages, concentrating here on the types of revision they had introduced.

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[1] This theory is summarized very briefly in footnote 10.

SUBJECTS

Thinking-aloud protocols provide the investigator with the richest data imaginable: for each page of composed text there may be twenty pages of protocol. In fact, this sometimes turns against thinking-aloud protocols as a research tool because analysis of the twenty pages requires a great deal of work. Because of this and because I decided to conduct thinking-aloud research in conjunction with drawing behavior protocols and analyzing the written products of my subjects, the work I was about to face accumulated to an even higher degree. For these reasons, as well as because of a limited pool of potential subjects to draw from, only three students took part in the experiment. They were randomly selected representatives of three groups of students whose status as skilled, average and unskilled writers respectively had been identified empirically in another study researching the writing processes of intermediate/advanced foreign language learners composing in their native and foreign languages (Skibniewski and Skibniewska 1986). At the time of execution of this study my three subjects were all fourth-year students of English of Adam Mickiewicz University, who may be thought of as advanced

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[2] To understand the relationship between the two types of methods, we can use the following metaphor (after Hayes and Flower 1983): When we use input-output methods to study writing, we act as if the writing process were occurring in a locked room which we cannot enter or look into. We put writers, writing assignments and reference books (inputs) into the room, and receive the finished text (output) at the door. By varying the inputs and observing their effects on the output, we infer what the writing process must have been. When, however, we use process-tracing methods, it is as if in addition to the data above we had a window allowing us to look into the locked room and observe some of the processes which lead inputs to output.

[3] The Polish assignment was:
Describe in approx. 600 words what joys and what difficulties a young woman/man faces studying at the University. Your opinion will be published in a monthly bulletin for senior high school students.
The English assignment was:
Write a three page essay explaining what it means to be an English major at the University. Your essay will be published in a monthly newsletter for high school students who take English courses.

[4] In thinking-aloud protocols subjects report anything they are thinking while performing a task.

[5] In behavior protocols investigators report what subjects do while they perform a task, but they do not ask subjects to report their thought processes verbally.

Polish learners of English with the past experience of seven semesters of a low-frequency course in writing.[6] As two years had passed since they were identified as skilled, average and unskilled respectively, I treated this value judgement as a working hypothesis to be tested by independent evaluators unaware of my assumptions. My hypothesis was confirmed.

RESULTS

As far as the first goal is concerned, this study has confirmed all the assumptions of the Cognitive Process Theory of Writing postulated by Hayes and Flower (1980) as well as has provided some additional information which helps in describing the writing processes of expository prose in more detail.

As to the second goal, the study identified distinct differences between the structure and course of the writing processes of the skilled and unskilled student writers composing both in their native and in their foreign languages.

1. Quality of Writing

Upon the completion of their writing tasks, the subjects' written products were graded by two independent evaluators unaware of the purposes of the experiment as well as unaware that each subject wrote one text in English and one in Polish. Below I present the results of their grading carried out according to the holistic scale of evaluation used in my Department:[7]

TABLE 1	essays in English		essays in Polish	
	evaluator A	evaluator B	evaluator A	evaluator B
subject 1	4.25[8]	4.5	4.5	5
subject 2	3.25[9]	3.5	3.25[9]	3.5
subject 3	2.5	2.5	2.5	3

Analysis of the grades listed above shows that subject 1 can be regarded as a skilled, subject 2 as an average, and subject 3 as an unskilled student writer in both languages.

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[6] Low-frequency as meeting only once a week for a 90 minute period.

[7] The scale consists of seven grades:
2 2.5 3 3.5 4 4.5 5
Grades 2 2.5 3 indicate poor quality,
grades 4 4.5 5 indicate high quality

[8] Here evaluator A hesitated between grades 4 and 4.5

[9] Here evaluators A and B hesitated between grades 3 and 3.5.

2. The Course and Structure of the Writing Process

Observation of the writers' behavior combined with access to their concurrent reporting of their thought processes unequivocally revealed that when composing in both languages they all proceeded by orchestrating three major cognitive processes: PLANNING, TRANSLATING, and REVIEWING.[10] The tables presented below list all the occurrences of cognitive processes as well as their subprocesses during the time of composing. It is maybe worth noting that the classification of the subprocesses is a result of laborious matching of thinking-aloud processes with the corresponding fragments of behavior protocols. As to the structure of the writing process which has emerged from my study, it definitely confirms a hierarchical (especially in the case of the skilled writer), and a highly embedded (in the case of all subjects) organization. Indeed, each of the three major processes was called upon a number of times (see Table 2 p. 198) and embedded within another process or even within an instance of itself.

Thinking-aloud protocols of my subjects have also revealed that writing is indeed a goal-directed thinking process. All three writers proceeded in the direction they had set up when deliberating over what their assignment demanded from them. It was, however, apparent that only the skilled writer proceeded by building a growing network of hierarchically organized goals. The average writer's network of goals was organized in part hierarchically and in part sequentially. The unskilled writer's goals had a clearly sequential organization.

Finally, this study shows that there are distinct groupings of planning, translating and reviewing processes, groupings involving the orchestration of all cognitive processes, where one of the three processes prevails. This is not a novel finding: the sequential ordering of the writing process has been postulated by such researchers as Emig (1971), Stallard (1974), Pianko (1979a, 1979b), Perl (1979). Hayes and Flower's Cognitive Process Theory of Writing has, however, revolutionized our understanding of the structure of the writing process as it has identified the cognitive activities whose orchestration underlies the sequence of planning → translating → reviewing. The grouping of cognitive processes in which PLANNING prevails can be referred to as the stage of Producing Text One. Similarly, the grouping of processes in which TRANSLATING prevails can be referred to as the stage of Producing Text One, while the grouping of processes in which REVIEWING prevails can be referred to as the stage of Reviewing Text One. Optionally, the average and unskilled writers engaged into a grouping of cognitive processes in which REVIEWING and TRANSLATING prevailed, a grouping which can be referred to as the stage of Producing Text Two, which was a revised version of Text One.

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[10] (After Hayes and Flower (1980) and Flower and Hayes (1981)): The function of PLANNING is to take information from the Task Environment and from Long-Term Memory and to use it to set up goals and to establish a writing plan to guide the production of a text that will meet those goals. The function of TRANSLATING is to transform the meaning generated and organized by the Planning Process into a linear string of written language. The function of REVIEWING is to improve the quality of the text produced by the Translating Process by detecting and correcting weaknesses in the text.

According to Flow and Hayes (1981), these three thingking processes have a hierarchical, highly embedded organization: the thinking-aloud research that they had conducted revealed that any given process may be called upon at any time and may be embedded within another process and even within an instance of itself. Writing is a goal-directed thinking process guided by the writer's growing network of content goals (which specify what the writer wants to say or do to his audience) and process goals (which instruct the writer how to carry out the process of writing). Good writers create hierarchical networks of goals in which higher-level goals give direction to their subsequent moves in which middle-range and, further on, lower-level goals are created. Poor writers, on the other hand, will either depend on very abstract, top-level goals, or, alternatively, they will depend on very low level goals, such as finishing a sentence or correctly spelling a word.

3. Differences between the Writing Processes of the Skilled, Average and Unskilled Student Writers.

a) *Results*

PLANNING. The most drastic differences could be observed within the planning process: The unskilled writer initiated her planning process (when composing in both languages) on the average slightly above 20 times during the entire writing process, the average writer did twice as many planning activities, whereas the skilled writer undertook as many as five time more instances of planning. This finding is significant at over the 0.001 level for both languages.[11]

It is also worth looking at the character of the planning activities: The unskilled and average writers did not virtually undertake any global goal-setting in either of the two languages,[12] whereas the skilled writer resorted to global goal-setting about 15 times in both languages. This finding is significant at the 0.01 level. As for procedural goal-setting, the unskilled writer set herself 10 goals during her writing processes in each language, the average writer did that about 1.5 times more often, while the skilled writer did the same thing over 4 times more often in both languages. This finding is significant at over the 0.001 level.

When composing in English, the unskilled writer turned to planning content only 7 times during the whole writing process, the average writer did

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[11] This and all the following statistical tabulations of the significance of my findings were done using the Chi-Square Test.

[12] The unskilled writer did this twice when composing in her native language.

TABLE 2 COGNITIVE PROCESSES INVOLVED IN COMPOSING

Writers	English essays								Polish essays							
	PLANNING PROCESSES															
	Goal Setting					Generating Content	Organizing Content	TOTAL	Goal Setting					Generating Content	Organizing Content	TOTAL
	Global Goals			Procedural					Global Goals			Procedural				
	audience	purpose	self	rhetor. tactics	consulting plan				audience	purpose	self	rhetor. tactics	consulting plan			
skilled	4	4	6	13	21	49	12	109	8	4	3	24	32	28	10	104
average	–	–	–	10	6	23	2	41	–	–	–	9	9	22	5	45
unskilled	–	–	–	7	3	7	1	18	–	1	1	5	7	10	1	25

Writers	TRANSLATING PROCESSES									
	Generating next sentence or its part	Searching linguistic expression of meaning	Searching best word phrase or collocation	Statisficing	TOTAL	Generating next sentence or its part	Searching linguistic expression of meaning	Searching best word, phrase or collocation	Statisficing	TOTAL
skilled	32	5	12	2	51	53	5	8	1	67
average	6	8	7	–	21	10	20	–	–	30
unskilled	21	11	24	–	56	68	8	4	–	80

TABLE 2 cd.

Writers	REVIEWING PROCESSES													
	English essays													TOTAL
	Rereading				Evaluation	Revising								
	current sentence	group of sentences	paragraphs	whole text		Rhetorical Revisions			Stylistic Revisions	Linguistic Revisions			Total Revision	
						paragraph structure and organ.	overall organization of essay	making content more precise		syntax	spelling	lexicon		
skilled	20	3	8	1	10	5	1	15	8	6	3	13	51	92
average	10	1	–	1	10	4	1	8	12	14	3	27	69	92
unskilled	32	5	2	2	35	1	–	5	5	5	4	6	26	102
	Polish essays													
skilled	37	8	12	1	18	5	–	12	6	5	5	10	43	119
average	20	6	3	2	18	13	1	24	6	15	14	31	104	153
unskilled	40	5	5	2	49	–	–	6	6	6	3	15	36	137

that 3 times more often and the skilled writer 7 times more often (significant at the 0.001 level). When composing in Polish, the unskilled writer planned content about 10 times, the average writer twice as often, and the skilled writer 3 times as often (significant at the 0.05 level).

As for organizational planning, when she composed in English the unskilled writer organized her content only once, the average writer did that twice, the skilled writer undertook organizing his ideas 12 times. When she composed in Polish the unskilled writer organized her content again only once, the average writer 5 times, and the skilled writer 10 times. Both findings are significant at the 0.01 level.

TRANSLATING. During her writing process in both languages the average writer undertook translating on the whole some 25 times, while the skilled writer did the same about 2.5 times more often, and the unskilled writer 3 times more often (significant at the 0.01 level for both languages).

REVIEWING. Within the reviewing process the unskilled writer introduced some 30 revisions in each of the two language versions, whereas the skilled writer made about 1.5 times more corrections and the average writer about 3 times more corrections. This finding is significant at over the 0.001 level for both languages.

Significantly enough, as many as 40% of all skilled writer's revisions in both languages were of global nature; only 27% of all average writer's revisions in both languages were of global nature, whereas as few as 20% of all unskilled writer's revisions were of global nature (significant at over the 0.01 level).

b) *Interpretation of Results*[13]

It seems that writers who have planned their prose substiantially and sufficiently and who have developed their hierarchically organized plans into the prose of their text, have no reason to engage in elaborate reviewing (my skilled writer). On the contrary, it seems that inadequate and insufficient planning results in numerous revisions, provided that the writer has some sense of what an effective piece of expository prose should look like (my average writer). Inadequate and insufficient planning combined with ignorance of or indifference for the characteristics of effective prose lead to poor quality of writing no matter how much effort and compassion is put into the writing process during translating (my unskilled writer).

To conclude this discussion of the differences between the writing processes of my subjects, I would like to point out the crucial significance of the cognitive process and stage of planning:

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[13] Where I use the plural "writers" in this section I refer to the observations made both in this study and in its preceding "parent study" reported in Skibniewski and Skibniewska (1986). Where I use the singular "writer" I refer specifically to the findings of the present study.

The average total writing time of the writing process in both languages is very similar for both the skilled and unskilled writers:[14] it was 199 min. (SD = 35) versus 203 min. 30 sec. (SD = 1.5) for the skilled and unskilled subjects, respectively. The solution to the puzzle as to what brings about a better quality of writing in the skilled writer's prose lies probably in the distribution of this time among the cognitive processes undertaken by the subjects as well as in the internal structure of the processes. The skilled writer planned for 48 min. (SD = 19) undertaking 43 planning activities (SD = 15) before even starting to compose the text proper, while the unskilled writer did this only for 5 min. (SD = 0.5) undertaking as few as 7 (SD = 1) planning activities. Further on, the skilled writer returned to planning during the stage of text production as many as 66 times (SD = 16), while the unskilled writer did this only 14 times (SD = 4). Throughout his planning activities the skilled writer set up 60 goals (SD = 11) which included 15 global goals (SD = I), while the unskilled writer set up only 12 goals (SD = 2) which included only 1 global goal (SD = 1). Additionally, the skilled writer organized his goals into hierarchical networks which guided his composing, a type of organization absent from the planning activities of the unskilled writer. In fact, the few goals that the unskilled writer set up for herself were restricted to the tactics of composing the surface structure of her sentences.

All in all, the skilled writer produced an elaborate network of hierarchically structured goals in the planning stage often returning to the process of global planning during the stage of text production. The unskilled writer, on the other hand, produced a very basic sequence of linear goals in the planning stage returning to the process of planning only very occasionally and for the purpose of solving problems of a very superficial nature in the stage of text production. It is in the attitude toward the stage and process of planning that I see the major qualifying difference between the writing processes of skilled and unskilled writers, irrespective of whether they are composing in their native or foreign languages.

In this respect the findings of my study differ substantially from the now traditional beliefs of the investigators researching the writing processes of skilled and unskilled writers (cf., e.g., Stallard (1974), Pianko (1979b)). Their findings indicated that skilled student writers introduced more revisions than other writers and that they stopped more often to reread what they had written. The results of my study seem to suggest that the investigators in question encountered in their research only average (whom they took for skilled) and unskilled writers. Had they encountered truly skilled writers in their research, they would have identified as the major difference between the writing processes of skilled and unskilled student writers the amount and character of planning rather than reviewing activities. This is the strong version of my hypothesis about the course and structure of the writing processes of skilled and unskilled, or effective and ineffective writers. The weak version might be formulated as follows: Adequate emphasis laid on the stage and process of planning leads one to efficiency in writing effective expository prose. It is not theoretically impossible to arrive at effective expository prose for weak planners, but to accomplish this they have to go through a laborious process of multiple revisions of the successive versions of their prose, a process which has very little to do with efficiency and a great deal to do with superfluous expenditure of time and effort.

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[14] To draw a conclusion pointing to some instructional implications we need only to compare the extreme cases of the skilled and the unskilled writers, leaving the middle-of-the-road one aside.

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ON CASE-MARKING IN POLISH *

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This paper is concerned with an analysis of some principles determining Case-marking in Polish. Data from Polish are analyzed here in terms of the assumptions of the Case theory in the Government-Binding (henceforth, GB) framework. The study investigates if and to what extent the theoretical assumptions claiming universality, yet adopted largely on the basis of English, a language with a degenerate Case-system, find support in a richly inflected language like Polish.

It will be shown here that Polish strongly supports the distinction made in the Case theory between structural and inherent Case-marking. The two instances of Case-marking are clearly distinguished under sentential negation in Polish. However, it will be argued here that the concept of inherent Case may be interpreted somewhat differently than in Chomsky (1986). It will also be suggested here that the properties of the passive construction in Polish may be deduced from the Case theory if verbs appearing with indirect objects and prepositional complements are systematically distinguished from verbs appearing with direct objects as regards the properties of Case-marking. Thus, it will be suggested here that lexical Case-markers assign Case in Polish analogously to prepositions. It will follow from the analysis of the Polish data that if the system of abstract Case-assignment is to be kept restrictive, marked processes of Case-realization must be allowed in particular languages.

1. The Case theory in GB: English

1.1 The concepts of Case and Case-marking.

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In the GB model, the subcomponent of the general system of principles which deals with Case is the Case theory.[1] The Case theory defines the notion of Case and determines the principles of Case-assignment, i.e., specifies the categories which assign Case, determines what Case is assigned and under what conditions it is assigned.

Case is a feature is the GB framework. It is a fundamental assumption of this theory, which distinguishes it from the traditional approaches to case, that the feature of Case is an abstract one: it may be realized morphologically, as is true of languages which have overt case-endings, but it need not be manifested morphologically, as is true of languages lacking overt case-morphology. Since Case is an abstract marker in GB, assigned uniformly whether it is realized overtly or not, all languages are subject to the (core) system of principles determining Case-assignment, although only some languages realize Case morphologically. In traditional theories (cf. Kuryłowicz (1964), Heinz (1955 and 1965)), case is a purely inflectional attribute and languages have case or lack it depending on whether they realize it or not.

The GB and traditional approaches also differ in defining what it means for a category to have, appropriately, Case or case. In the GB theory, Case is assigned by Case-marking categories, i.e., an element acquires a feature of Case as a result of being assigned Case by a category which has Case to assign. Traditionally (cf. Kuryłowicz 1964), case is possessed, i.e., an element has case either by virtue of being syntactically dependent on a category which selects for the case-form of its syntactic dependent, or the element does not depend syntactically on any category and has case which is the exponent of a well-defined semantic (thematic) relation which this element expresses in the structure.

Another difference between the GB and the traditional approaches is that in the former. Case is assigned to NPs while in the latter, it is primarily an attribute of nouns.[2] The general requirement imposed by the Case theory in the GB model is that (lexical) NPs must have Case. This requirement, known as the Case Filter, cannot be reduced to the requirement that nouns rather than NPs must have Case, as it holds of both NPs which have a nominal head and of NPs which do not have a nominal head, as is the case with gerunds and infinitivals in NP positions. Thus, all the structures in (1) may be treated analogously, i.e., they are all ill-formed by virtue of containing a Caseless NP:

(1) a.* I wonder [who_i $[[_{\text{NP}}$ he] to surprise t_i]]
b.* I wonder [who_i $[[_{\text{NP}}$ his winning] to surprise t_i]]
c.* I wonder [who_i [for $[_{\text{NP}}$ him to win] to surprise t_i]]

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[1] Following a generally accepted convention, I shall use the term Case referring to abstract Case and the term case referring to morphologically realized Case.

[2] Both theories assume that the process of agreement involves, appropriately, Case- or case-sharing.

1.2 The principles of Case-assignment

1.2.1 Conditions on Case-assignment: government and adjacency

The main conditions imposed on Case-assignment in GB are the requirement that Case be assigned under government and the requirement that it obey adjacency. The former requirement explains the ungrammaticality of (2) and the latter requirement explains the ill-formedness of (3):

(2) * John tried [[Mary to be sick]]
(3) * John gave to Mary [a book]

(2) is ill-formed with respect to the Case theory because it contains an NP (i.e., *Mary*) which is not governed (by a Case-assigner), hence, which is Caseless. (3) is ill-formed because the object NP is not adjacent to the verb and thus cannot be marked for Case by the verb.[3]

1.2.2 Case-assigners

There have been two approaches to the problem of the principles determining the assignment of Case in the GB theory. In Chomsky (1981), only the [−N] categories, i.e., verbs and prepositions, as well as the constituent INFL of tensed clauses are considered to have the property of assigning Case. The constituent INFL assigns nominative Case only if it has the element [+AGR], i.e., if the clause is tensed. Verbs assign objective Case to their object NPs and prepositions assign oblique Cases to their complements.[4] The genitive Case in NPs and APs is not assigned by a governor, since nouns and adjectives are not Case-assigners. Rather, genitive Case is assigned under the genitive Case rule assigning Case in the configuration (4a) and under *of*−insertion in (4b) (cf. Chomsky (1981:170, 50)).

(4) a. [$_{NP}$ __ X′]
b. [[+N] __ NP]

The genitive Case assigned under (4a) is realized by the inserted *'s*. The genitive Case assigned under (4b) is realized by the semantically inert preposition *of*.

In Chomsky (1986), the class of potential Case-assigners includes all lexical categories, i.e., verbs, prepositions, nouns, and adjectives, as well as the constituent INFL. As before, nominative Case is assigned by INFL if INFL is [+AGR], objective Case is assigned by verbs to their complements, and oblique Cases are assigned by prepositions to their object NPs (cf. note 4).

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[3] *Heavy* object NPs need not be adjacent to the verb in surface structure. The status of the rule shifting such NPs is not clear.

[4] In English, prepositions may be assigning objective rather than oblique Case.

In contrast with Chomsky (1981), in Chomsky (1986) genitive Case is assigned directly by nouns and adjectives.

1.2.3 Case-assignment and Case-realization

Chomsky (1986) assumes that Case-assignment is directional, where the direction in which Case is assigned corresponds to the head parameter of the X′-theory. Thus, if heads are initial, as in English, Case-assignment should be uniformly to the right. Since in English NPs, a Case-marked NP may appear to the right of the head or to the left of the head, as shown in (5a) and (5b), respectively, Case-assignment is distinguished from Case-realization.

(5) a. the destruction of [the city]
b. [the city's] destruction

In (5a), genitive Case is assigned to the complement, i.e., to the right, and it is also realized to the right, but it is assigned to the right and realized to the left in (5b). Hence, there are two instances of genitive Case-realization in English: in the complement and in the subject positions.

Chomsky (1986) assumes isomorphism of assigned and realized Case. For example, if a category is marked for genitive Case, it cannot realize nominative Case.

1.2.4 The Case Filter and the concept of structural and inherent Case in GB and traditional theories

The Case theory of Chomsky (1986) makes a distinction between structural and inherent Cases. Nominative and objective are instances of structural Case. Structural Case is a purely configurational notion; it is Case assigned in terms of the appearance of an NP at S-structure, in dissociation from Th-marking. Structural Case may be assigned to an NP by a governor which marks the NP for Th-role, but it may also be assigned to an NP by a governor which does not mark the NP for Th-role, e.g., nominative Case-marking is assignment of Case in dissociation from Th-marking. If structural Case could be viewed as a marker of the structural relation in which NPs stand to head categories, the notion of structural Case in GB would be directly analogous to the notion of grammatical case of Kuryłowicz (1964), where the grammatical case-endings are considered to be merely the exponents of the syntactic dependence of nouns on head categories in structures, but where the heads determining grammatical cases include only verbs and nouns.

Inherent Cases, genitive and oblique, are assigned in close association with Th-marking, at D-structure. This association falls under the uniformity condition ensuring that a category may assign inherent Case to an element only if it assigns a Th-role to this element. Actually, since Th-roles are assigned to chains headed by an element which is Case-marked, the Case Filter of Chomsky (1986) is not a morphological condition holding of the PF component, unlike in Chomsky (1981). Rather, it is a condition holding at LF, determined by the visibility condition on Th-marking. Roughly, the visibility condition ensures that a chain is visible for Th-marking if it is headed by Case at LF. Thus, in this theory, Case is an abstract marker making Th-marking and interpretation in the semantic component possible.

In the approach to the Case theory in Chomsky (1986), Case is dissociated from Th-role in nominative and objective Case-assignment. Case and Th-role are associated in the assignment of oblique Cases, nominal and adjectival genitive and verbal Case other than the objective, e.g., genitive or dative, if a language allows such Case-marking. Yet, even if Case is associated with Th-marking, Case does not express relations other than the structural dependence of a constituent of phrase on the head of the phrase. There is no interdependence between the kind of Case assigned and the kind of Th-role assigned in Chomsky's accounts of Case: it is not claimed in the GB theory that specific Th-roles or ranges of Th-roles may be correlated with specific Cases or ranges of Cases so that particular Cases could be viewed as the exponents of the Th-roles which NPs bear to their lexical heads. In this respect, the notion of inherent Case of Chomsky (1981 and 1986) differs from the notion of concrete, or semantic case of Kuryłowicz (1964), for whom semantic cases are determined contextually, i.e., such cases depend on the semantics of particular verbs in the sense that there is a common semantic denominator to verbs selecting for a concrete (i.e., semantic) case and there is a common relational meaning to their object NPs, or else NPs appearing in concrete case-forms have well-defined (adverbial) meanings comparable with the meanings associated with prepositional phrases functioning as adverbial expressions, i.e., case-endings in case-languages may express the same relations that prepositions express in languages with or without degenerate case-morphology. Case-languages may differ depending on whether they have both the grammatical and concrete cases or only the grammatical cases (cf. Kuryłowicz 1964:32). Thus, it is of fundamental importance in traditional theories what case-form a category appears in and what function the case-ending has in the case-system of the given language (cf. Heinz 1955). In GB, in contrast, what is most significant is that an NP has Case. The Case feature makes it possible for an NP to receive a Th-role and semantic interpretation, but the Case feature does not serve to identify the Th-role, whether Case is structural or not. Thus, it is of little, if any, significance in the GB theory that "dative" verbs belong to a well-defined semantic class or that the possessor phrase appears in the genitive in a large number of unrelated languages, e.g., English as well as Japanese.

2. A GB analysis of Case in Polish

2.1 Polish case-morphology

Polish has seven distinct morphological cases: nominative, genitive, dative, accusative, instrumental, locative, and vocative. The vocative, which will not be discussed here, is realized on NPs used in isolation, i.e., in addresses and appeals. All other case-endings are realized on NPs appearing in structures. Nominative is the case of the subject of tensed clauses and locative is an exclusively prepositional case in Polish. Accusative is not realized in NPs and APs in Polish, as predicted by Chomsky's (1986) analysis. Instrumental, genitive, and dative NPs occur in NPs, APs, PPs, and as objects of verbal heads. Under sentential negation, the otherwise accusative NP occurs in the genitive case-form in Polish.

2.2 Bare NP adjuncts and Case-marking

Consider the following examples:

(6) Jan wysłał im pieniądze [pocztą (instr)]
(= John sent them money [(by) mail])
(7) Jan napisał to [ołówkiem (instr)]
(= John wrote this [(in) pencil])

In (6), the expression in the instrumental case-form functions as the adverbial of means. In (7), it functions as the adverbial of instrument. The expressions are peripheral to the verb, i.e., they are not subcategorized. In the X′-theory, they are immediate constituents of VP rather than V′, which includes only subcategorized elements. By virtue of the fact that adjunct NPs are not complements of the verb, they cannot receive Th-roles (if they are marked for Th-roles) from the verb. Neither can they receive Case from the verb, whether objective or inherent, the latter option being precluded by the uniformity condition. As shown in the English translations of (6) and (7), in English such expressions appear as PPs, where the object NP of the head preposition plausibly receives its Th-role and Case from the head preposition. However, an adverbial modifier need not be expressed only as a PP in English. English has a limited class of bare NPs functioning as adjuncts of time, place, direction, and manner, as witnessed by (8) (cf. Larson 1985:595):

(8) a. I saw John [$_{NP}$ that day]
b. You pronounced my name [$_{NP}$ every way one could imagine]

Also Polish has bare NP adverbs functioning as temporal and locative modifiers:

(9) a. Jan spał [cały dzień(acc)]
(= John slept [the whole day])
b. Jan przyjechał [następnego dnia(gen)]
(= John arrived [the next day])
c. Jan pójdzie [lasem(instr)]
(= John will go [(through) the forest])

The appearance of bare NP adjuncts in sentences raises questions relating to their status with regard to the Th-theory and the Case theory. Non-subcategorized adverbials need not be analyzed as arguments: they do not appear in A-positions. Hence, their appearance in structures is not enforced by the Th-theory and it follows that they are optional. The situation is different in the case of subcategorized adverbials, as in (10) below:

(10) a. [$_{VP}$ put the book *([$_{PP}$ on the desk])]
b. [$_{VP}$ take someone *([$_{NP}$ an hour])]

The verbs *put* and *take*+NP must be analyzed as having adverbial Th-roles to assign and consequently, VPs headed by these verbs must contain expressions receiving these adverbial Th-roles.

What structures like (10) show is that prepositional expressions of place and NPs of time extension may, and sometimes must, be assigned a Th-role. Theoretically, then, adverbial modifiers in (6), (7), and (9) may be assigned a Th-role. What seems to differentiate the assignment of Th-roles in (10) from Th-assignment in (6), (7), and (9) is that in the former case, the Th-roles are assigned obligatorily, by a lexical head, while in the latter, the Th-roles are assigned optionally, perhaps under a general convention allowing such assignment rather than by a lexical head (cf. Larson 1985). If adverbial Th-roles may be assigned freely, subject to semantic interpretation, they must be semantically compatible with the head verbs, e.g., a temporal Th-role may be assigned if the verb may be interpreted relative to time location. Alternatively, it may be possible to suggest that adjunct Th-roles are assigned compositionally by predicates and that such roles are optional. Note that adjunct Th-roles may to some extent be treated analogously to subject Th-roles: a verb is specified as assigning a subject Th-role although it does not assign it directly and it may be specified as assigning adjunct Th-roles although it does not assign such roles directly. Yet, while subject Th-roles are obligatory, adjunct Th-roles are optional.

It seems desirable to subsume adverbial adjuncts under the Th-theory: if adjunct phrases bear Th-roles, their appearance in structures falls under the Th-criterion and it is possible to explain the ill-formedness of sentences containing more than one expression bearing a given adverbial Th-role, e.g., the role of Instrument as in (11):

(11) *John attached the board to the wall with a nail, with a hammer.

In this approach, it would be possible to analyze expressions such as *on the desk* and *an hour* uniformly, i.e., they would be interpreted as expressing, respectively, spatial and temporal Th-relations whether they are subcategorized or not. Only the manner in which their Th-roles are assigned would be different depending on the structures they are part of.

As illustrated in (9), a bare NP adjunct may appear in different case-forms in Polish. The accusative in (9a) is associated with a temporal Th-role, which is a relation of temporal extension. The noun of the accusative NP denotes a stretch of time, a temporal measure. In contrast with the accusative, the temporal genitive in (9b) is associated with a moment within the period of time denoted by the noun. A selectional restriction is imposed on the head noun of the genitive adjunct: the noun must denote a divisible period of time and not a point in time. This explains the availability of genitive NPs like *tego dnia* (= that day) and the unavailability of genitive NPs like * *tej chwili* (= that moment). The restriction is analogous to restrictions holding between prepositions and head nouns. For example, the preposition *at* of a temporal PP selects for nouns denoting points of time rather than time extensions. Hence, *at this moment* is possible but * *at this week* is not.

In Polish, the accusative of temporal extension is compatible with a durative verb like *spać* (= to sleep) and the partitive genitive is compatible with a verb of momentary action like *przyjechać* (= to arrive). Thus, selectional restrictions hold between head verbs and the Case/case of adjunct NPs. Moreover, selectional restrictions seem to hold also between the noun of the adjunct NP and the Case/case of this NP, just as such restrictions hold between the head noun and the preposition.[5] In GB, selectional restrictions are considered to hold between heads. Restrictions between verbs and nouns are restrictions between heads. Restrictions between the Case of the NP and the nouns of this NP may be regarded as holding between heads if the Case is analyzed as the head of the adverbial NP, e.g., the case-ending is the head of the adjunct phrase. If so, lexical Case-markers in Polish would be analyzed on a par with prepositions. Just as prepositions are Th-assigners, lexical Case-markers may be associated with Th-roles. Just as prepositions are the exponent of various adjunct Th-roles which may be in relation to the verb

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[5] Note that the restriction responsible for the unavailability of (i) below must be holding between the noun and the genitive itself, as *przyjechać* (= to arrive) is semantically compatible with an adverbial modifier whose head noun denotes a point in time, as witnessed by (ii):

(i) * przyjechać [$_{NP_{gen}}$ tej chwili, gdy ...]
(= to arrive [the moment when ...])
(ii) przyjechać [$_{PP}$ w chwili, gdy ...]
(= to arrive [at the moment when ...])

(e.g., *to talk with Mary [for an hour]*: *to talk with Mary [(on) the next day]*), lexical Case-markers are the exponent of Th-roles (e.g., *rozmawiać z Marią [godzinę(acc)]* (= to talk with Mary for an hour): *rozmawiać z Marią [następnego dnia (gen)]* (= to talk with Mary the next day)). I will adopt this analysis, following the insights inherent in the traditional studies of Kuryłowicz (1964) and Heinz (1965). Thus, I submit here that various Cases may be associated with various Th-roles in Polish and that the assignment of adjunct Th-roles (which may be optional Th-roles assigned by prepositions) is mediated through a lexical Case-marker just as it may be mediated through a preposition.[6] That is, a predicate may select for an autonomous Th-assigner, a preposition or a lexical Case-marker (if a language permits the latter option) to assign its indirect adjunct Th-role. The preposition and the Case-marker also assign Case.[7]

2.3. Case-marking and sentential negation in Polish

The assignment of Case to adjunct NPs in Polish is associated with Th-marking. Hence, it is inherent Case-marking in terms of Chomsky's (1986) analysis. The interaction between Case-marking and sentential negation provides support for the assumption that Case-marking involved in adjuncts differs from Case-marking in objects.

Sentential negation affects the assignment of Case to an object NP in Polish: an accusative object of a verb appearing in a declarative sentence is obligatorily expressed in the genitive in a negated counterpart. However, negation does not affect oblique accusative, as shown in (12) and (13):

(12) Jan liczy [$_{PP}$ na [pomoc(acc)/* pomocy(gen)]]
(= John counts [on help])
(13) Jan nie liczy [$_{PP}$ na [pomoc(acc)/* pomocy(gen)]]
(= John does not count [on help])

If negation affects only verbal accusative, expressions like the bracketed NP in (9a) should not be affected by negation. Compare (14b), which involves an adjunct, with (15b), which involves an object NP:

(14) a. Deszcz padał [trzy godziny(acc)]
(= The rain was falling (for) three hours)
b. Deszcz nie padał [trzy godziny(acc)/* trzech godzin(gen)]
(= The rain was not falling (for) three hours)

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[6] Similarly to the temporal accusative and genitive, the instrumental Case assigns a spatial Th-role (cf. (9c)). The spatial relation is that of traversed space and it is also assigned by the preposition *przez* (= through).

[7] See Anderson (1983) and Larson (1985) for different approaches to the problem of Case- and Th-marking to adjunct NPs in English.

(15) a. Jan przeszedł [trzy mile(acc)]
(= John walked three miles)
b. Jan nie przeszedł [* trzy mile(acc)/ trzech mili (gen)]
(= John did not walk three miles)

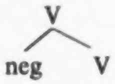
By affecting only the assignment of accusative Case to an object NP of a head verb, negation distinguishes between the assignment of verbal accusative to an object NP from the assignment of accusative Case to an adjunct, as well as to a prepositional object. In terms of Chomsky's (1986) analysis, the former is structural Case whereas the latter is inherent Case.

If negation affects the assignment of structural Case, it may be expected to affect nominative Case-assignment, as nominative Case is structural in Chomsky (1986). Furthermore, negation may be expected not to affect the assignment of verbal non-accusative, which Chomsky (1986) analyzes as inherent. These preditions are supported by relevant data:

(16) a. Jan pomógł [Irenie(dat)] (= John helped Irene)
b. Jan nie pomógł [Irenie(dat)/* Ireny(gen)]
(= John did not help Irene)
(17) a. Na stole jest [książka(nom)]
(= There is a book on the table)
(17) b. Na stole nie ma [* książka(nom)/książki(gen)]
(= There isn't a book on the table)

As the sentences in (17) show, the subject NP is nominative in a declarative existential-locative sentence in Polish, but this NP is genitive in a negated counterpart. The structural analysis of existential-locative sentences is of no special concern here and I will assume that the NP in question appears in the VP at some level, either as a result of lowering into VP transformationally, or by virtue of having been base-generated in the VP. I submit here that the morpheme of sentential negation, i.e., neg, realized as *nie*, obligatorily cliticizes onto the verb in the syntax, forming a complex verbal unit as in (18):

(18)



The evidence for the assumption that *nie* is a verbal clitic-like element is two-fold. The morpheme of sentential negation behaves like a proclitic with regard to stress-assignment in Polish (cf. Ozga 1976). There is also syntactic evidence suggesting that *nie* cliticizes onto the verb in Polish: no constituent, not even another clitic may separate *nie* from the verb, as shown in (19):

(19) a. Jan nie nudzi się (clitic) (= John is not bored)
b. Jan się nie nudzi
c. * Jan nie się nudzi

Despite the fact that *nie* and the verb form a complex verb, it would not be well-motivated to suggest that sentential negation is lexical in nature in Polish, i.e., that the verb is pulled from the lexicon with *nie* already cliticized onto it. Such an account would unduly expand the lexicon of Polish and a lexical rule would have to be postulated which does not affect the argument structure of the verb; hence, does not feed the Projection Principle, which is expected of syntactic rather than lexical rules (cf. Borer 1983, Williams 1981). Furthermore, treating sentential negation as lexical would amount to treating predicates like *nie być* (*całkiem*) *szczęśliwym* (= not to be (quite) happy) and *być* (*całkiem*) *nieszczęśliwym* (= to be (quite) unhappy) on a par syntactically and semantically, which is undesirable. Such a treatment would predict that there are no scope relation differences between structures involving sentential and structures involving lexical negation, but such differences may easily be observed. For example, (20a) is ambiguous between the **not Q** and the **Q not** readings whereas (20b) admits only the **Q not** reading:

(20) a. Jan nie widział wielu rzeczy
(= John did not see many things)
b. Jan był niezadowolony z wielu rzeczy
(= John was displeased with many things)

Sentential and lexical negation in Polish also differ in the range of negative lexical items which may occur with the morpheme *nie*. Negative polarity items such as *nikt* (= no one), *nigdy* (= never), *nigdzie* (= nowhere), etc., may occur under sentential but not under lexical negation:

(21) a. Jan nie był nigdy zadowolony
(= John was never pleased)
b. * Jan był nigdy niezadowolony)
(= John was never displeased)

In view of the above considerations, I will assume here that sentential negation is syntactic in Polish, i.e., the cliticization of *nie* takes place in the syntax. What remains to be explained is why sentential negation affects structural Case-marking but does not affect inherent Case-marking. I will address this problem later in this section.

2.4 Inherent Case-marking in Polish

In Chomsky (1986), oblique Cases and verbal Case other that the accusative are analyzed as inherent, assigned at D-structure and associated with Th-marking. Although it is quite natural to regard the assignment of Case by prepositions as related to Th-marking, it is not clear why verbs assigning dative, genitive, or instrumental rather than objective should assign inherent rather than structural Case. What is unexplained in this approach and clearly needs to be explained is how verbs assigning inherent Cases differ from verbs assigning structural Case. Furthermore, if relating Th-marking to Case under inherent Case-marking is well-motivated, it must be explained if every instance of verbal non-accusative may indeed be analyzed as related thematically and if it is distinct from structural Case. Another problem that arises in connection with distinct mechanisms of Case-marking is whether the difference in the way in which object NPs are assigned Case is paralleled by other distinctions manifesting themselves in the syntactic behavior of the complements marked for Case differently, or marked for different Cases.

I submit here that dative is inherent in Polish and that it is associated with the Th-role Goal, instrumental is inherent when it is associated with the Th-role Source, and genitive is inherent in Polish when it is associated with the Th-role Source (or Cause) or the Th-role Goal (or Target). In all instances where the non-accusative complements do not express these relations in construction with the verb, the Case assigned is objective, e.g., I claim here that the abstract Case assigned to the object of the verb *kierować* (= to direct, manage), which appears in the instrumental case-form, is objective, and that the genitive object NP of the verb *nienawidzieć* (= to hate) is also assigned objective Case. I submit here that objective Case is realized by irregular allomorphs of the objective Case morpheme with such verbs. Irregular allomorphs are governed lexically, i.e., objective Case may be realized by an irregular allomorph only with certain verbs. The lexical entries of such verbs may thus have to be specified for the particular case-form realizing their Case feature. If markedness of lexical items may be determined on the basis of the number of features necessary to define the given lexical entry, transitive verbs assigning objective Case realized regularly need not be marked in the lexicon with respect to their Case-assigning property, or may be marked as assigning Case, i.e., [+Case]. In the absence of the Case-assignment specification (or if the item is marked as [+Case]), the Case feature will be realized as accusative under a redundancy rule. Transitive verbs assigning objective Case realized by the irregular allomorph may also have to be specified for the allomorph realizing the Case feature, e.g., [+Case, /+instr/]. The motivation underlying this analysis is that it differentiates between the object NPs of various verbs. While the object NPs marked for inherent Case tend to be optional, express well-defined relational meanings, cannot serve as subjects of passive sentences, and are not affected by the morpheme of sentential negation, the object NPs marked for objective Case by the head verb tend to be obligatory, may serve as subjects of passive sentences, and are affected under sentential negation. Accusative verbs are distinguished from (inherently) non-accusative verbs in this study in that accusative verbs are transitive, i.e., they assign Case to their object NPs, while (inherently) non-accusative verbs are intransitive, i.e., they do not assign Case to their indirect arguments. Rather, they select for an autonomous Th-role assigner, i.e., a preposition or a Case-marker, which is also a Case-assigner.[8] In this way, inherent Cases assigned by Case-markers are associated with Th-roles (cf. also Rizzi (1986)).

2.5 Lexical Case-markers and prepositions in Polish

As has been suggested above, lexical Case-markers are associated with Th-roles on a par with prepositions. In fact, prepositions assign all the Th-roles assigned also by the lexical Case-markers in Polish. For example, the Th-role Goal may be assigned both by the dative or the genitive and by the preposition *do* (= to). The Th-role Benefactive (Malefactive) associated with the dative in Polish may be assigned by *dla* (= for). The Th-role Source assigned by the inherent genitive is assigned by the prepositions *od* (= from) and *z* (= from). Not unexpectedly, many changes may be observed in the categorial realization of arguments bearing such Th-roles in the historical development of Polish, e.g., the prepositional complement $[_{PP}$ *dla* NP$]$ of the verb *poświęcić* (= to sacrifice) in contemporary Polish could earlier be expressed by a dative NP (cf. Kałkowska et al 1974:21), or the contemporary instrumental complement of the verb *dziwić się* (= to be surprised) could earlier be expressed by the PP *nad* + NP (= over/at + NP) (Kałkowska et al 1975:29). In contemporary Polish, a lexical head may occur both with a prepositional complement and with an inherently Case-marked object NP, e.g., *nieznany* (= unknown) + dative NP or $[_{PP}$ *dla* + NP$]$ (= for + NP).

2.6 Passive sentences in Polish

As has been shown by Zabrocki (1981), passive is severely restricted in Polish. Unlike English, Polish does not allow indirect object and prepositional passives. In English, the passive construction is analyzed to have two sources: lexical and syntactic. Lexical passive is governed thematically, i.e., the subject phrase of the passive sentence must be marked for the Th-role Theme. Syntactic passive is not governed thematically and is derived by the movement of the object NP into the subject position, as shown in (22) below.

(22) a. e was arrested John
b. John$_i$ was arrested t_i

---

[8] It may also be that the lexical Case-marker is just a place-holder for the Th-role assigned directly by the verb, but it assigns Case. This seems to be taking place also in some V + PP structures, where the head preposition does not seem to have a Th-role to assign, but where it marks the NP for Case, e.g., *liczyć na coś* (= to count on something).

The passive morpheme is analyzed as a clitic which absorbs the Case of the verb to which it attaches. Thus, the object NP must move to a Case-marked position or the structure will offend the Case Filter. The question that arises in connection with the passive construction in Polish is whether the restrictions on the passive follow from the lexical nature of the construction (cf. Zabrocki 1981), or from the conditions on Case-marking in passive structures in Polish.

The hypothesis that passive is lexical in Polish is a natural one given that passive is so heavily constrained in Polish. Yet, this analysis depends on the Th-theory adopted for the purposes of the study: the Th-role assigned to the object NP by verbs like *uderzyć* (= to hit), *przekonać* (= to persuade), or *pokazać* (= to show) may be interpreted to be the same, i.e., Theme (cf. Williams 1981), or all three verbs may be analyzed as assigning different roles, i.e., Patient, Goal, and Theme, respectively (cf. Chomsky (1986), Rizzi (1986)). More importantly, however, the NP *Jan* carries the object Th-role in both (23a) and (23b):

(23) a. Jan został aresztowany przez policję
(= John was arrested by the police)
b. Policja aresztowała Jana
(= The police arrested John)

If the passive (23) were lexical, the internal argument of the verb *aresztować* (= to arrest) would be assigned its Th-role by the verb in (23b) but compositionally by the VP in (23a).

Suppose that (some) passive constructions may be analyzed as syntactic in Polish. Then, the passive morpheme may be analyzed as absorbing the Case of the verb. Let us see if the restrictions on the passive construction in Polish may follows from the properties of Case-marking in passive sentences in Polish.

As has been discussed by Zabrocki (1981), dative and prepositional complements do not have related passives (cf. (24)). Direct object NPs, typically accusative NPs, have related passive, as shown in (25). Interestingly, verbs assigning objective Case which is realized irregularly also have related passive, as shown in (26):

(24) a. * Maria została pokazana książkę
(= Mary was shown a book)
b. * Maria była polegana na (= Mary was relied upon)
(25) Jan został uderzony/znaleziony/zastrzelony/przekonany
(= John was hit/found/shot dead/persuaded)
(26) a. Jan jest nienawidzony przez wszystkich
(= John is hated by everyone)
b. Jan jest poniewierany przez szefa
(= John is maltreated by the boss)

Assuming that passive morphology absorbs the Case assigned by the verb, the distributional properties of the passive construction in Polish will follow from the principles of Case-marking if it is assumed, as has been done above, that verbs taking indirect objects and prepositional complements do not assign Case in Polish. Hence the passive morphology does not affect the assignment of Case to such complements and they cannot undergo NP-movement without violating the Case Filter (i.e., NPs marked for inherent Case cannot realize it). In contrast, passive morphology affects the assignment of Case by the head verb, i.e., objective Case. Object NPs marked for Case by the verb must be moved to a Case-marked position in a passive sentence or else such NPs would lack Case.

2.7 Case-assignment and Case-realization: the genitive of negation in Polish

Consider the following sentences:

(27) a. [$_{\text{NPnom}}$ Dwaj mężczyźni (nom)] pobili Jana
(= Two men beat up John)
b. [$_{\text{NPnom}}$ Dwóch mężczyzn (gen)] pobiło Jana
(= Two men beat up John)

In (27a), the subject NP consists of the counted noun *mężczyźni* (= men) and the numeral *dwaj* (= two). The NP is in the nominative and triggers regular verbal agreement. In (27b), the counted noun as well as the numeral are in the genitive case-form. The NP triggers irregular verbal agreement, or does not trigger agreement at all and the verb is marked for the features third person, singular, neuter by default. The structures in (27) are syntactically parallel: the bracketed NP is the subject in both cases, assigned the same Th-role by the predicate *pobić Jana* (= to beat up John). Yet, the NPs differ morphologically. Note that it would not be reasonable to analyze the numeral *dwóch* (= two) as the head of the subject NP (the numeral *dwaj* (= two) has adjectival inflection and is clearly a modifer), as the counted noun would have to be analyzed as a complement and the fact that it realizes dative Case when the inclusive NP is marked for dative, as in (28), could not be explained.

(28) Maria pomogła [$_{\text{NPdat}}$ dwóm mężczyznom (dat)]
(= Mary helped two men)

Hence, the counted noun is in the genitive case-form in quantified NPs in Polish only when the inclusive NP is marked for nominative (cf. (27b)) or objective (cf. (29)) Cases.

(29) Maria spotkała [$_{\text{NPacc}}$ dwóch mężczyzn (gen)]
(= Mary met two men)

What this suggests is that the morphemes realizing nominative and accusative Cases (i.e., structural Cases) have allomorphs syncretic to the allomorph of the morpheme realizing the genitive Case and that these allomorphs realize nominative and accusative Cases in certain well-defined configurations, e.g., in the presence of quantificational modifiers like *wiele* (= many), seminumerals like *kilka* (= several), and the numerals *dwóch* (= two), *trzech* (= three), *czterech* (= four) as well as the numerals (ending in) *pięć* (= five) and more, e.g., [ośmiu mężczyzn (gen)] (= eight men).

Since the marked morphological mechanism of Case-realization must be allowed in the grammar of Polish in view of the data in (27) and (29), it seems better-motivated to analyze the genitive of sentential negation as an instance of marked Case-realization than as an instance of a marked mechanism of Case-assignment. Thus, I submit here that assigned Case may have marked realization in Polish also in the context of the morpheme of sentential negation *nie*. On this analysis, *nie* is expected to affect the assignment of structural Cases, but it is not expected to affect the assignment of inherent Cases. What remains to be explained is why *nie* does not affect the lexically governed realization of objective Case, as shown in (30):

(30) Jan nie dowodzi [plutonem (instr)/* plutonu (gen)]
(= John does not lead/command a platoon)

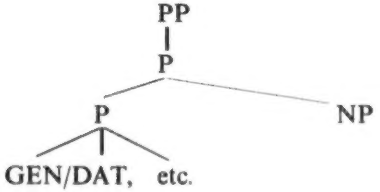
Here, I suggest that if Case-realization is specified in the matrix of inherent features of a category, this requirement takes precedence over a convention realizing Case depending on context. That is, the feature [/+instr/] takes precedence in (31):

(31) [$_V$ nie [$_V$ +Case, /+instr/]]

3. Conclusions

As the analyses have shown, Polish clearly distinguishes between the structural Cases, nominative and accusative, and the inherent Cases, genitive, dative, instrumental, and oblique. It also supports the assumption that the former are assigned at S-structure, in dissociation from Th-marking, while the latter are marked at D-structure, in close association with Th-assignment. Since direct object NPs differ in Polish from indirect objects and prepositional complements both with regard to the ability to have related passive and with regard to the phenomenon of the genitive of negation, it has been suggested here that direct object NPs (as well as the subject NP) are marked for Case directly by the verb (and INFL-AGR, respectively), while indirect objects and prepositional complements are assigned Case by lexical Case-markers and prepositions, respectively. This analysis entails that Case-markers are heads of the NPs realizing the assigned inherent Cases. It is thus necessary to claim that Case-markers are lexical categories. I submit here that they are a subclass of prepositions in Polish, as they assign the same Th-roles that prepositions assign and often alternate with prepositional phrases in realizing the arguments of the verbs categorially. The structural analysis of a phrase whose head is a Case-marker may be as in (32):

(32)



The Case-markers in (32) are bound morphemes and they cliticize onto their object NPs past the level of D-structure. They are realized through appropriate case-endings, which manifest the Case they assign.

It has also shown here that the restrictive system of principles determining the assignment of particular Cases suggested in Chomsky (1986) may be maintained, but it is necessary to assume that abstract Case is realized under morphological mechanisms (if a language realizes Case morphologically), which may involve highly-marked, language-specific processes.

The analysis of the Case-theory in Polish presented here ascribes to the case-system a function and significance which go beyond the subdomain of inflectional morphology. In terms of the present analysis, languages do not differ merely in having or lacking phonological or morphophonological mechanisms spelling out the feature of Case. As has been shown here, the fact that Polish has case-morphology has ramifications for other components of its grammar; in particular it has ramifications for its syntax.

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